THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

NOVEMBER, 1889.

ON CERTAIN ABNORMALITIES OF THE RECTUM OBSERVABLE IN VETERINARY PRACTICE.

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In country practice, rectal abnormalities are not at all infrequent, are often very alarming, and unless quickly, cautiously, and energetically treated, are by no means free from danger.

The most commonly occurring rectal derangement is what may be called *protrusion*, which, in so far as my experience goes, may be found in three forms; namely, (1) where the whole rectum is turned out, its inner end being outermost—this is called *procidented;* (2) where only the posterior half is pushed out—this is what is generally known as *prolapsus;* (3) where the anterior part becomes invaginated or cannoned into the posterior part, and appears outside the anus—this is called rectal *intussusception.*

The most serious phase is, of course, where the whole rectum is protruded. I had a case of this sort quite recently in a fine polled cow. The whole organ was turned inside out, and was outside the anus; it was very much swollen, and torn deeply in three or four places. Reduction and retention in position were accomplished as follows: bathing with warm water and soda carbonate, clearing away all torn pieces of mucous membrane, of which there were plenty, and then with the aid of an assistant cautiously but forcibly putting pressure on the extremity of the protrusion, gradually replacing it in its natural position. To retain it there I introduced three (double-buttoned) metallic sutures right across the anal opening, with their attachments fully an inch and a half away from the anus on either side, thus leaving free vent to the fæces. Before commencing to operate, I injected six grains

of morphia subcutaneously, and yet the tenesmus was so great that *prolapsus vaginæ* took place, which I reduced, and inserted one suture through the *labia vulvæ* to retain *in situ*. My patient is now all right.

During last winter I had two very interesting cases of prolapsus recti in sows; in both the prolapsus had existed for about three months, in consequence of which the protrusion was quite hard and callous. In the one sow, after much trouble, I reduced the abnormal anal appendage, and kept it in its normal position with two metallic sutures, as above. In the other the owner would not admit of operation, so the hard and callous protruded part of the rectum was allowed to dangle about outside in all sorts of weather and among all kinds of dirt, until *it fell away*, and left a pretty fair-looking anus behind, adhesion between the remaining part of gut and inside of anal opening having taken place. Such a *finale* is, I should say, rather uncommon, and certainly not to be depended on.

There is a sort of invagination or intussusception of the rectum which takes place without any *external* appearance of that viscus. I had a case of this kind some time ago in a Clydesdale mare, to which I was called late at night; the animal was in extreme agony, lying down and getting up almost constantly, sweating, etc.; there was also severe tenesmus and straining, owing, as the owner thought, to retention of urine. Examination *per vaginam* showed the fallacy of this idea; so I explored the rectum, and discovered that the anterior part of that viscus had become invaginated or rolled into the posterior portion, and would, with the severe tenesmus, no doubt in time have appeared outside. I injected five grains of morphia hypodermically, and at once proceeded to return the intussuscepted part of the rectum, which I accomplished with comparatively little trouble, and retained it in its natural position for ten minutes, by my hand in the rectum, after which it did not again return to its erratic condition.

In all cases of colic accompanied by straining, this invagination of the rectum, without external appearance, ought to be looked for, as I am certain it occurs oftener than might be expected.

I have met with two sorts of growths in the rectum, namely, a soft, ragged, and *fleshy*, and a hard, knotty, and *fibrous*. The former are generally easily got rid of by pulling outside, cutting off, and searing the base, root, or pedicle with a hot iron; the hard, knotty and fibrous tumours formed in the rectum appear to be more of a malignant nature, are more difficult to get at, and unless you can induce their destruction by thoroughly breaking them up and producing a sort of suppuration, are very apt to reappear. I had a case of this description in a pregnant heifer

last winter; the owner thought she was going to abort, as she was straining severely and almost constantly, but on cursorily examining her I discovered that there was a very slight blood-stained discharge from the anus; so I explored the rectum (instead of the vagina), and discovered a hard, knotty, broad, flat tumour in the floor of the rectum, about six or seven inches in. Having a rather powerful vaginal speculum with me, I gave the owner a good look at the *cause* of the supposed abortion, which greatly astonished him. I used very little ceremony in the breaking up and scraping away as much as possible of this tumour, and at my next visit found the remaining base of it suppurating or festering all over. Repeated applications of strongly carbolised olive oil completed the cure.

Abscesses are far from uncommon in the floor of the rectum of young stock, generally males.

I have over and over again evacuated such abscesses without their recurring, or any other bad effects. A cause for these abscesses I could never satisfactorily discover, unless in two or three cases where I afterwards found Tuberculosis crop up.

A different sort of abscesses often occurs in the rectum of cows, and sometimes in mares, resulting from injuries received during parturition; these may be evacuated either *per rectum* or *per vaginam*, as may be found most suitable or convenient; their presence is indicated by tenesmus.

Congenital rectal malformations or abnormalities are not infrequently found in foals, calves, lambs, and pigs. The rectum may be altogether absent, or it may have no posterior vent or anus, or it may have no connection anteriorly with the small colon. In either case the consequences are generally rather serious, if not fatal. No doubt the congenital occlusion of the anus may at times be permanently rectified by a very slight operation, but cases admitting of such happy results are unluckily few and far between. If the rectum be absent, or have no connection anteriorly, the case must of dire necessity prove fatal.

Recently, I have had two cases in foals in which the rectum ended anteriorly in a blind pouch. In the one case this isolated rectum was connected with the latter part of the small colon by means of a fibrous cord, about the thickness of whip-cord, of eight inches long. The small colon, where it ought to have joined or formed the rectum, ended in an immense pouch full of thin fæcal matter. In the other foal the rectum was completely isolated, and had no connection of any sort with the other intestines.

I had a very curious case last spring in a calf, in which the rectum was entirely occluded throughout its whole course, as was also the anus. With perseverance and great caution, I got the

rectum rendered pervious *without drawing blood;* but I was no better, as there still appeared to be no open connection with the small colon. The little creature died, and I then discovered that the intestine ended in a small blind pouch, with no connection, about six feet from anus. I had a similar case about a year ago, but did not get a *post-mortem* examination, so cannot fully report. My theory as to this occlusion of the rectum, *congenital rectal atresia*, is that it arises from the want of the absolutely necessary connection with the other part of the intestine anteriorly. The rectum being thoroughly isolated and quiescent, its collapsed and inactive walls become more or less firmly attached, and *atresia* follows.

I shall conclude these rambling remarks as to the rectum, by noting a rather peculiar and extraordinary state in which it is at times found. Most veterinarians are now pretty well aware of the connection between the rectum and the clinical thermometer in veterinary practice, the rectum being almost invariably the receptacle for that invaluable "aid to diagnosis." The natural temperature thus obtained in the various domesticated animals is now so well known as to need no discussion here; for instance, the natural temperature in cattle is now accepted as 102° F.; but in some rare instances we find a reliable thermometer registering as low as 97°, or even 95° F.! This brings me to what I have called an "extraordinary state" of the rectum, namely, the excessive lowering of its temperature. I had a case of this kind lately in a cow, in which the rectal temperature ran down as low as 95° F.; and even then the cow was "chewing the cud," although inappetent.

As a rule, in bovines the vaginal temperature is a shade lower than the rectal; but in the above cow the vaginal temperature ran up to 99° F.; so that the abnormally low temperature was almost entirely restricted to the rectum. I took repeated rectal observations in this cow, and even washed out the rectum several times with warm water, to make sure that my thermometer did not come in contact with any dormant fæces; but to no purpose, for the low temperature prevailed, and even the contiguous passage was always as low as 98° or 99° F. This is not an isolated case, as I have observed the same state of matters before, but have never been able to account for the abnormality. Whatever was the cause, in this cow its influence was partially felt in the vagina, where the temperature was, at the highest, three degrees below the natural. In this case the very fæces and gases passed were comparatively cold.

THE CHEMICAL COMPOSITION OF SYNOVIA, AND THE GASES FOUND IN PUS, SWEAT, AND SALIVA.

BY PROFESSOR FRED SMITH, M.R.C.V.S., F.I.C., ARMY VETERINARY SCHOOL, ALDERSHOT.

Synovia.—Through the kindness of Mr. J. Brett, M.R.C.V.S., of Nottingham, I received a bottle containing synovia, removed from the stifle joint of a foal.

The fluid was of a yellow colour, with a faint tint of red; flakes of fibrine were seen in it, probably due to the accidental presence of some blood; on beating with a rod it yielded no fibrine. The synovia was not fresh, I do not know how many days old it was, but it had a perfectly sweet and rather aromatic odour; this latter was probably due to the bottle.

Its reaction was faintly alkaline, its specific gravity 1,014.

It gave the following composition:—

Water	95·5768	Albumen	2·1429
Organic matter	3·8855	Fat ...	·0466
Salts	·5377	Mucin ...	·0491

The salts consisted chiefly of chlorides of sodium, sulphates, and magnesia; lime was present in traces, and potash absent.

Pus.—I collected over mercury some pus from a Strangles abscess, submitted it to the vacuum of a mercury pump, and so extracted the gases.

100 c.c. of pus yielded 26·028 c.c. of gas at 0°C. and 760 mm. Bar.*

This gas had the following composition:—

Carbonic Acid	15·6167
Oxygen	2·2023
Nitrogen	8·2090
	26·0280

I could find no combined CO_2.

The pus was perfectly fresh, and had not come in contact with the air.

Sweat.—The fluid was removed by scraping the body of a horse which was sweating profusely after a gallop; it was immediately placed over mercury to avoid any loss or change in its gases.

Submitted to the vacuum of a mercury pump, 100 c.c. of sweat yielded, at standard temperature and pressure, 38·9246 c.c. of gas.

* To those not conversant with the metrical system, read for c.c. the word "parts" or "measures."

This gas had the following composition :—

CO_2	—
O	8·1946
N	30·7300

I was most surprised to find no CO_2. In another specimen of sweat, taken from a different horse, I found a small quantity of CO_2.

Saliva (*Horse*).—The saliva was obtained by the administration of pilocarpine.

It was submitted to the vacuum of a mercury pump, and 100 c.c. of saliva yielded 41·71 c.c. of gas of the following composition :—

CO_2	1·378
O	27·490
N	12·842

We are shown by these three analyses how unequally the dissolved gases of the body are distributed—the large amount of CO_2 in pus, its absence in sweat; the large amount of oxygen in saliva, the small amount in pus, and the large quantity of nitrogen in sweat are all interesting points from the physiologist's point of view.

A FEW NOTES ON TORSION OF THE UTERUS AND PUERPERAL FEVER.

BY C. CUNNINGHAM, V.S., SLATEFORD.

ABOUT three years ago (Feb., 1886) I ventured to insert in the Journal four cases of Torsion of the Uterus—two failures and two successfully treated—in the hope and with the wish that the details might be useful to other practitioners :—that some at least might be induced to avoid the errors committed, and by adopting the means effectively used, be enabled to deal more readily and more easily with this troublesome form of presentation.

During the present year I have had to do with two other cases, to which I may be excused referring, as they illustrate other phases of the subject—tending to show still further the good effect of "rolling" or "rotation" of the cow's body—the danger of this process when the stomach is distended with solid food and gas—and the great advantage, if not necessity, of having the parts flaccid and relaxed, and the contents of the rumen in as soft and fluid condition as possible.

The first case, which we may term Case V. (20th Feb., 1889)—a big, cross-bred Ayrshire cow, about eight years old—had shewn labour pains more or less for sixteen hours before I saw her, with the result that, despite the severe and long-continued straining, the mem-

branes were not broken, the twist effectually preventing their passage into the vagina; but the calf had been thrown on its back towards the left or near side of the cow, with the withers presented to the udder and doubled knees to the spine; while the head and neck, lying at full stretch, had been forced under the vagina, displacing the bladder to such an extent that the lower surface of the chin could be felt under the hand a few inches within the vulva lying immediately underneath the meatus urinarius,—the lower jaw being next the vagina and the frontal bones and face of the calf resting on the pubes close to the symphysis. When the cow lay down, the finger on entering the meatus was directed up over the head of the calf, and the urine could be made to trickle down. Such an unnatural position suggested even at first rupture, or at least extreme stretching of the walls of the uterus.

The cow had been fed on bog-hay, turnips, and mash,—the abdomen was big and some tympany present. Clearly to my mind the treatment here was laxative medicine, time, and then careful "rolling," as in our previous case.

At a little moorland farm however, in wet, wintry weather, the prospect of leaving, and of having to trot back again six or seven miles during night or early morning to "roll" the cow,—was not inviting. Convenience whispered that this was not such a bad case—that the uterus might perhaps turn as well with a full stomach as an empty one. The temptation to give the cow a roll or two was too great to be resisted, and the result was that we almost obliterated the vaginal twist, but the walls of the uterus were unable to bear the strain, and all efforts to extricate the head of the calf from its peculiar position under the vagina were fruitless. At the third or fourth half-turn the membranes rolled out of their own accord and burst,—the parts became more relaxed and natural—the passage to the calf was almost straight, but the head and neck seemed forced into and tightly embraced by a glove-like pocket formed by the uterine walls, from which we found it beyond our power to get it free. We could detect no rupture, but after one of the rollings over we noticed a little fresh blood on our hand, and shortly afterward the passage of some more—old, clotted and venous. The cow too had become more distressed, breathing much more hurriedly, and we gave the case up as hopeless.

To give the cow, however, one more chance for life, and as an experiment, a good firm dose of laxative medicine and stimulants was given, and next morning (eighteen hours afterwards) we found the tympanitis gone, the belly half the size, a very large quantity of hard fæces passed,—parts soft and relaxed, cow not much worse-looking, and in ten minutes without any difficulty we had the head up and the legs right, and everything ready for calving. All "too

late, however, the advantage came :" from the time that the head had been quietly lifted out of the glove-like pocket referred to, the liquor amnii poured out of the vulva, and, as *post-mortem* examination showed, it had also poured into the abdominal cavity through a rent in the neck of the uterus ; and the cow rapidly sank. The calf was found lying now in a natural position,—head on knees, with a rupture of a good few inches on the upper part of the organ, through which the crown of the calf, covered with the membranes, protruded.—Not a pleasant conclusion to ponder over.

Case VI.—A big young Shorthorn cow, newly purchased, was found at pasture on a Thursday evening (25th July, 1889) down with Milk Fever, and to get her under cover the owner and his men adopted the singular expedient of rolling her over and over for about twenty yards to the shelter of a lean-to shed or outhouse. She was there under the fever treated by the parties themselves, till on Saturday morning about two o'clock she began to calve, "burst the water-bag," and made but little further progress. I saw her about 4 a.m. She was recovering from the Puerperal Fever, but unable to rise, examination showing—almost at the full stretch of one's arm in the big cow—a regular vaginal twist, through which to the knee one foreleg protruded. Not a nice outlook, with the cow unable to rise.

We were fortunate otherwise, however ; the cow had had physic, which was operating nicely—a fine summer morning, and a nice level court to "roll" in. Tying up the cow's forelegs to her elbows by a soft rope across the withers, and bringing the off-hind foot forward as if for castration, leaving the near leg free, four or five good men were ranged from head to tail, with orders to send her over well, and with no nonsense. Fixing my hand well into the twist, over went the cow from her near side across her belly to the off, and then right over her back to the near—a great improvement. Over again across her belly to the off-side—the membranes and liquor amnii escape—one forefoot and the head and lower jaw in an inverted position are easily felt and are corded. Grasping the lower jaw firmly, we told the men to give the cow another good round roll across her back (as we had plenty of room in the court) and the result was all we could wish, the head came into its right position, the other foreleg was easily got up, and allowing about an hour and a half for the os uteri to sufficiently dilate, the cow was easily delivered of a calf dead and beginning to decompose.

Remarks.—We have brought forward Case V. simply by way of warning—our bad cases as well as good. We shall never again if we can help it—owing to wind and rain outside—roll a big cow with *full* abdomen in a corner of a barn, with a mixture of

elderly men and lads not able to handle her. A distended stomach, the presence of a large quantity of solid food, and badly-managed rolling may tend to explain away some of the other cases of failure we hear of.

Case VI. tends to throw some light on the cause of Torsion. The rolling of the cow over and over twenty yards from right to left by the owner may have produced the twist, as our rolling her over and over from left to right for about eight or ten yards reduced it. Any sudden doubling or falling down may be the beginning of what ultimately becomes Torsion.

I may be permitted to state that I have read with pleasure and interest the remarks of Mr. Macgillivray and others on this subject. I can easily see how under certain circumstances and conditions Mr. Macgillivray's plan of "jamming" may be most useful, especially in cases where the twist is not too severe and confirmed, or the parts have become relaxed by laxatives or other causes. In Case III. of my own some such means were being tried. The lower jaw and feet were corded, and were being held tightly when the cow suddenly dropping and springing up again, the uterus righted itself. Mr. Thomson, of Aspatria, too, mentions three similar cases. Mr. Macgillivray's plan seems more elaborate and carefully considered, and when, as he states, "rolling" cannot conveniently be put in practice, "jamming" may with advantage be adopted.

To get the head and fore extremities fixed in the twist, and then by a degree of force and manipulation to bring the uterus and fœtus into proper position, appears at first sight to be the most natural and likely mode of procedure. A little reflection will, however, I think, show that it has its disadvantages, and has been too often tried.

In the first place, "jamming" or fixing means considerable work to the operator and pain to the patient. Mr. Macgillivray, if I remember aright, succeeded in one case after "one hour and a half's exertion." Mr. Thomson succeeded in another case after a good deal of labour and anxiety, three or four fellows pulling so well that when the calf came away with a rush, that genial practitioner was nearly extinguished on his own showing. Compare this, without the slightest presumption or any approach to it on my part, with Cases IV. and VI., about the worst cases of Torsion we have met with. No force whatever was used in these cases; in our opinion it would have been needless to attempt it with them. The fore feet and one of the hind were simply tied to facilitate the "rolling" process, and the cows previously well prepared by physic were rolled and over, with the result—our hand being fixed in the twist—that the cow herself in each case undid the folds, and delivery in an hour or two was natural and easy.

No tugging or working on our part, only a little planning and manœuvring, resulting in some amusement, but a thoroughly satisfactory finish.

Again supposing as in Case II. some one like myself ruptures the membranes and tries for two or three hours to bring the head and fore feet together into the twist, and finds that he can bring only the head by itself, or the feet by themselves, but not both together, and therefore cannot properly fix or jam the calf, and like myself fails. It is scarcely time then to turn to the rolling system. The membranes are broken; much of the waters has escaped; the parts are beginning to get irritated and dry; perhaps the calf has become emphysematous; the chances of success by rolling are reduced to a minimum. With a big emphysematous calf closely embraced, and held by a tightly-clasping dry uterus, it is almost folly to expect a favourable result.

On the other hand, supposing rolling is first tried. It takes but a short time to test it. The membranes it may be are untouched; the liquor amnii abundant; and should the rolling fail (which it has not as yet with me) then "jamming" or Denoc or Dareau's proceeding—suspending the cow from a beam—or any other measures may be tried, unprejudiced or interfered with by the previous rolling.

I would, therefore, strongly advise that in these cases of Torsion, rolling be first tried, in all but the very simplest cases. It is so easy and satisfactory for the operator when the cow is properly prepared, and good active men at hand to turn well. A little chloroform, too, I think would enhance the ease and value of the system. With the cow under its influence, "rolling" and the reduction of the twist should be still more easy.

Some may say that in cases no proper place and assistance can be had. This we experienced to our cost in Case V., but a little thought and waiting can almost always overcome this objection. Better give a dose of physic and wait till cover of night and roll the cow on the street, or hire a man or two to help, than perhaps kill the patient by ineffectual efforts at delivery without reduction of the twist.

Others may say there is no time to wait, and no great need for physic. Such has not been my experience. I have always found a moderate purgative, if not previously given, and an allowance of ten or twelve hours or more for its action of the greatest possible service.

"Rolling" or "rotation of the cow's body," practised in the way we have endeavoured to explain, appears to us the least painful, the most easy, and the most effectual means of reducing the vaginal twist and abnormal position of the uterus.

Puerperal Fever.—In the various articles and discussions on this disease I am surprised that so little notice is generally taken of its frequent and tantalising concomitant and result, viz., hard painful swelling of the parts in the region of the thigh and hock, resulting in inability to rise, the animal being practically and generally hopelessly "hamstrung."

Of the cases of Fever or Apoplexy I have met with, I think I am within the mark in saying that more than one fourth have been thus affected. The animal goes down in a comatose or semi-comatose state for eighteen or twenty-four hours, and begins to recover—looks about her—begins to feed a little—it may be to ruminate, and we expect her soon to get to her feet, but she doesn't; only rolls from side to side; and looking for a cause, we find the gastrocnemii tendons, near the point of the hock, swollen and painful, hot and tender to the touch. The muscles, too, in front, a little below the stifle, are enlarged and sore, while the fleshy part of the thigh behind has become converted into a big hard swollen mass. Generally both legs are affected; occasionally one only. The animal, as we all know, goes from bad to worse, loses all power over the hind quarters, till with brisket, belly, and udder pressed firmly to the ground she lies with a big, swollen hind leg on each side of her—a helpless object—retaining, however, almost full power over the fore extremities.

Post-mortem examination of a recent case of this kind shows considerable *dark-coloured* effusion underneath the skin and between the several layers of the tissues—often patchy in character. Some of the muscles on being cut into are found congested dark red, nearly black in colour, while others side by side are but little affected—the tendo-Achilles being almost always involved. In older cases, this appearance gives place to a dirty yellowish white or brownish yellow hard consolidation of the tissues which may go on to softening or sloughing. On cutting too into the fleshy mass surrounding the femur up to near the hip joint, we find the muscles for the most part healthy-looking but soft, while here and there are small lighter-coloured patches, dry looking, with the appearance of atrophy about them, contrasting strangely with the red healthy-looking tissue surrounding them.

What is this state of matters? I. Is it simply paralysis of the hind quarters—due to effusion or softening or derangement in connection with the spinal cord, or with the large nerves supplying the loins or haunch? Are these appearances simply the result and effect of insufficient or deranged nerve force? We believe that the paralytic theory will not of itself explain all the phenomenon exhibited. Simple paralysis does not, so far as we are aware, show itself by hard painful swelling of the muscles and tissues going on

to hard consolidation. The animal's legs are not at first paralysed, but the gastrocnemii tendons and part of the large flexors are so swollen and painful that the animal is to all intents and purposes hamstrung. And even in the more advanced stages, the legs never dangle loose and free like an animal broken or injured in the back or loins, but stick out almost at full stretch, hard, and stiff and enlarged about the stifles to twice or thrice their natural size.

II. Puerperal Apoplexy has been said to arise from some anatomical arrangement of the blood-vessels supplying the neck, head, and brain. Is there a corresponding distribution to the hind quarters? III. Does this swelling arise from Embolism? or, IV. Is it a form of Septicæmia? or, V. Does it follow Puerperal Fever, as Rheumatism of the tissues surrounding certain joints supervenes occasionally on recovery from severe chest affection?

Medical men appear interested in this disease, and as showing how one at least viewed the matter, I may mention an incident which occurred a good many years ago. A gentleman's cow, an Alderney, partially recovered from Milk Fever, but remained useless from this affection of the hind legs. Everything was done for her in the way of slings, stimulants, nerve tonics, etc., and at last she was dispatched under chloroform and bled very freely. During our *post-mortem* a medical gentleman of good standing in the neighbouring city (Edinburgh) came on the scene—examined the carcase carefully—heard all I had to say (with that neutral, passive, calmly meditative air which many veterinary surgeons might well copy), but said nothing until I took my leave, when, hastily calling the attendants, he ordered them instantly to wash their hands in very warm water, with soap, carbolic, etc. "They did not know the danger they were incurring," "Blood-poisoning, and Blood-poisoning of a very bad kind that cow had died of in his opinion." We thought when told that if such was the case we had often run the risk with impunity, but on a little reflection we were inclined to think that on the whole the M.D. was not far wrong. The cause and effect shows itself first locally in the tissues involved, not so far as we have been able to judge primarily in paralysis of the parts, and we incline to believe that it is a form of Septic invasion, or Blood-poisoning, as the medical gentleman termed it, the sequence of the fever after parturition.

We are yet, I fear, far from a perfect knowledge of the real nature, cause, *modus operandi*, and after effects of the so-called Puerperal Apoplexy or Milk-fever. In some instances we have undoubtedly apoplexy and death. In others, the apparent apoplexy passes off so quickly, and recovery is so rapid and lasting, that we doubt its presence.

A cow at parturition time seems to me not unlike a machine

charged with electricity or smokeless gunpowder. With sufficient exercise, and bowels and uterus and kidneys in good order—a copious flow and a good drawing-off of the milk—all goes well. But let some chill, or a want of exercise, or a little extra feeding or altered diet, or a dozen paltry changes—which at other times would do no harm—occur at calving time, and down goes the cow with what may be the big boom of Apoplexy or the small shot of Metritis, Enteritis or Peritonitis, Mammitis, or it may be Septicæmia. With these bad legs so often and too often to spoil our best cases of recovery.

As regards treatment of these cases, I have nothing new to add. I have only occasionally seen a case recover, after the swelling of the legs became thoroughly established. By far the greater majority with me never rise, but either die or are slaughtered. In premises in which a run of Milk-fever cases has occurred, I generally advise the parties to watch and give each calving-cow a good laxative if possible just before the labour pains come on—judging from our torsion cases, I believe this is good practice. It makes the calving more easy, and regulates the bowels at the same time. I further see at once to a thorough cleaning and disinfection of the whole cow-house by boiling water and freshly slaked lime. It may be fancy, but for a time at least I think this treatment prevents or puts a check on the further occurrence of cases of the disease.

TREATMENT OF BURSATTI BY SLOUGHING.

BY S. M. SMITH, M.R.C.V.S., A.V.D., KIRKEE, INDIA.

A NUMBER of articles have from time to time appeared in the veterinary journals on the pathology, etc., of Bursatti, and the treatment generally recommended has been excision and caustics. I would like to draw the attention, chiefly of your military readers, to a method of treatment I have lately adopted with very great success. But let it be clearly understood that I do not for a moment profess that this line of treatment will be at all successful if the lungs contain the "kunkur," as in some few cases I have seen in *post-mortems*.

The treatment is as follows: The Bursatti sore or ulcer is to be *completely* covered with finely powdered white arsenic, pressing it in lightly with the finger. The sore is then found to become perfectly dry. In three days' time a distinct line of demarcation appears, from which there will be a slight discharge of pus; and so the slough gradually becomes separated from the seat of disease, leaving behind it a healthy granulating wound having a nice bright red colour. Now this wound merely requires a simple dressing

three times a day, of ordinary white lotion (acetate of lead and sulphate of zinc), applied by means of tow. In all cases where it is possible, cover with bandages and tow saturated with the lotion (as on the legs); in other cases cover with cloths, or by glueing fine gauze above, to hang over the seat of disease. There are some cases in which the kunkur is deep-seated in muscular structure, as, for example, inside the thigh, and having an external opening by means of a small sinus. Lay the sinus open from end to end, but do not attempt to dissect out the kunkur. In three or four days a growth will have appeared by rapid granulation. Now, instead of attempting to take this down by excision, caustics, or actual cautery, simply cover it over with the powdered arsenic. In from four days to a week a slough will come away, bringing with it the deep-seated kunkur, and leaving behind a perfectly smooth healthy surface; the kunkur will be found on the inner face of the slough. As the depression which has been formed by the removal of the slough fills up, which it will do rapidly, the white lotion dressing and an occasional application of copper will be found sufficient. The end is that new skin is rapidly grown from the edges, and finally the wound disappears, the hair growing from the surrounding skin completely covering the part. This is a great advantage over destruction of a large portion of skin that takes place when excision is practised. I have operated on several cases at the angle of the mouth by excision, but I found the time was much less when the arsenic is applied, and it is certain the sloughing process is a much surer means of taking out the very small pieces of kunkur than the knife. And let me here say that merely picking out the small kunkur points from the connective tissue with the point of a knife, is absolutely useless; the sore may heal temporarily, but it will be sure to appear again. If the knife is used at all the incision must be made through healthy tissue, sacrificing a small portion of it, and thus preventing the recurrence of the disease. But I feel satisfied that the sloughing process is by far the quicker and safer method. And, in conclusion, I may state that to the question asked me by several officers (among them being H.R.H. the Duke of Connaught), who have inspected the cases I have treated, as to the danger by absorption or by the animal licking off the arsenic, especially at the corners of the mouth, I have replied that there is absolutely no danger.

I know there may be some cases in which the animal is absolutely covered with sores, but probably then the disease exists in the lungs, and the animal will never recover; but if it is decided to treat it, commence on one part of the body, and dress a few sores every second day. The amount of arsenic required is extremely small, and no untoward occurrence is to be feared.

PROPHYLAXY OF BOVINE CONTAGIOUS PLEURO-PNEUMONIA.

BY PROFESSOR A. DEGIVE, BRUSSELS VETERINARY SCHOOL.

(*Continued from page* 239.)

There is one fact of the highest importance, and which has been brought into salient relief by observations made in recent times, and that is the relative frequency of contagious Pleuro-pneumonia in a chronic or latent form, which most frequently passes unperceived, and which may remain stationary, and therefore be ignored, for a year, or even longer. In admitting that in this form the disease may be little if at all virulent, might it not happen that, from some accidental cause, it would become acute and very contagious? I am of opinion that in this way are produced a good number of cases in certain byres into which new cattle have not been introduced for several months, or even for more than a year.

Three principal preventive measures are applicable to suspected animals—*slaughter*, *immobilisation*, and *isolation*.

By *immobilisation* I mean removal from commerce, or prohibition from selling for any purpose but slaughter.

Of the three measures, the first two may be declared sufficient to prevent all danger of contamination by animals affected with the chronic disease.

The third, *isolation*, insufficient by itself, should never be employed except as an adjunct or complementary element to the other two.

It cannot be contested that the *slaughter* of the *contaminated* is the most certain means of extinguishing contagious Pleuro-pneumonia. Everywhere it has been applied in a rigorous and general manner (as in Baden, Switzerland, Alsace-Lorraine, Holland), the disease soon diminishes and ultimately disappears. But to obtain such a result it will be seen how necessary it is to increase the indemnity; though if it is considered what a small tax the expenses are subsequently reduced to, it should be recognised that the sum thus expended, however considerable it may be, is capital usefully invested, and which soon realises considerable interest.

The slaughter of contaminated animals is carried out in various ways. It may be imposed directly by formal prescription, obligatory, as in Switzerland; it may be done in an indirect, non-obligatory manner, as in the Grand Duchy of Baden, in making the proprietor desire it.

Though in principle the first system is certainly the most simple

and efficacious, I think the second is less vexatious, and consequently more practical.

In Baden the contaminated cattle are kept *severely isolated* for six months after the last case of disease. Before the expiry of that period the owner has always the right to demand the slaughter of the whole of his stock, and he is awarded an indemnity equivalent to the total value, previously estimated, of each animal, a deduction being made of the sum realised by the sale of the flesh and offal.

When slaughter is officially prescribed, it is naturally fair to allow some delay in order to allow the animals to be fattened somewhat.

It seems to me that the desired result may be perfectly attained by a system quite as simple, but more economical than those adopted in Switzerland and the Grand Duchy of Baden. This system may be epitomised as follows :—

1. General slaughter shall not be adopted in the case of contaminated animals undergoing fattening in industrial establishments (as breweries); they shall be considered as *hors commerce*, immobilised, and only to be sold for direct conveyance to the abattoir. After severe sequestration of two months at least, they may be allowed to circulate freely, and be exposed in ordinary markets, but they should be returned to their owners when not sold.

2. Everywhere else than in these establishments, contaminated cattle should be severely isolated *for six months at least*, as in the Grand Duchy of Baden. During these six months the owner may always claim general slaughter, and receive an indemnity equal to one-fourth of the value of each animal, the maximum not exceeding £6. I am persuaded that this compensation should be sufficient to induce the owner to demand general slaughter.

In order to facilitate this operation, authority should be given to have it effected at several times.

3. Every contaminated beast used or sold during the two first months of isolation should be slaughtered on the spot, or sent direct to the abattoir, where it should be kept isolated until it is killed, all necessary precautions being observed to prevent spread of the contagion.

I believe it is unnecessary to enter here upon the conditions pertaining to isolation in its three principal forms—*sequestration*, *cantonment*, *sanitary zone;* and the measures which are complementary to them—*census*, *marking*, and *surveillance*, as they are generally known.

(*c*) *Measures applicable to Places, Vehicles, etc.*

I also abstain from entering into details concerning the measures

relative to infected things, and shall simply express my views with regard to the subject as follows :—

1. Cowsheds, fairs, markets, and vehicles which have been occupied by diseased or suspected animals should be carefully cleansed and disinfected. A cowshed especially should not be again occupied until it has been thoroughly disinfected.

2. Pastures which have been frequented by diseased cattle should be interdicted for at least fifteen days.

3. The various things which have been ordinarily employed with diseased or suspected animals, or at their slaughter, transport, or burial, ought to be destroyed or disinfected. Straw and fodder may be used for solipeds.

III. General Measures.

With regard to the general measures, common to all the contagious maladies, I shall limit myself to speaking of compensation, penalties, legislation, and regulations.

1. *Compensation.*

The compensation to be given to owners of animals affected with a contagious disease responds to three principal indications. It constitutes (1) a legitimate remuneration for the injury caused by the application of the different measures applied in the general interest; (2) a particular award for losses undergone; (3) a stimulus or encouragement to the faithful execution of certain formalities (declaration), and the employment of certain non-obligatory but useful measures, such as the general slaughter of the contaminated.

In order to accomplish this triple object, it is essential that the compensation should be liberal; the more liberal it is the more efficacious it will be.

2. *Penalties.*

If there is need to encourage owners to carry out certain measures, it is necessary, *per contra*, to inflict *very severe* pains and penalties on those who neglect the execution of the various sanitary prescriptions decreed by the authorities.

3. *Legislation, Regulations.*

To produce their useful effects, the sanitary measures should be consecrated by special laws, decrees, and regulations. Sanitary legislation comprises two essential elements—(1) the ordinances and measures which ought to be carried out; (2) the manner in which they should be applied by the combined and co-ordinated action of the authorities, veterinary surgeons, and others. In this respect the function of the veterinary surgeons is certainly

the most important; and so there can be no possible efficacious prophylaxy without a proper veterinary sanitary service.

In my opinion, the following is the general type upon which such a service should perform its functions: Under the direction and control of a chief veterinary inspector and a certain number of veterinary inspectors of a secondary order (county, district, etc.), sufficiently well paid to be altogether independent of clients—under this double direction and control should act the largest number possible of veterinary surgeons who will consent to conform to the obligations of official service.

CONCLUSIONS.

As it is not possible for the Congress to discuss in detail all the questions submitted to it, I believe it will be useful to note, in the form of conclusions, the essential points on which it ought to particularly fix its attention and give its judgment.

* * * * * *

1. In the interests of sanitary police, it is very important that the inspection of animals slaughtered for consumption should be generalised and rendered obligatory.

2. Animals suspected of being affected with contagious Pleuropneumonia should be slaughtered, like those really attacked by it.

3. With regard to contaminated cattle (suspected of contamination) undergoing fattening in industrial establishments, general slaughter may be usefully replaced by *immobilisation*. Such animals should be declared *hors commerce*, and should only be sold for direct transmission to the abattoir.

4. Contaminated animals ought to be isolated for six months.

CANCER IN THE LOWER ANIMALS.

BY R. W. BURKE, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, KILKENNY.

IN an excellent review of the history of Cancer in herbivora, which appeared in a recent number of the *Journal of Comparative Pathology and Therapeutics*, the editor stated that the only way of telling Cancer from other diseases was by defining the character of the neoplasm by microscopical investigation. When it is known how imperfect is the knowledge of malignant new growths, and whilst the pathology of such growths is still quite unknown, it is a gain at least to discover that there are yet more certain and as useful tests of the accuracy of our statements, namely, the property peculiar to malignant growths, which is special to them, and which needs attention if the place of Cancer is to be defined. There are the clinical characters of the disease, the conditions of soil and local climate most favourable to its

development, etc., and which the editor does not recognise, because he has no experience of the latter in either patient. Dr. Moore, in a recent lecture on Cancer, delivered before the Royal College of Physicians of London, said, "The microscopic characters alone are not always sufficient. It is essential, in the investigation of this subject, always to consider together these three circumstances—microscopic structure, naked-eye appearance, and clinical history."

We note what Dr. Haviland, lecturer on the "Geographical Distribution of Disease" at St. Thomas's Hospital, London, teaches: "Among the 630 registration districts into which England and Wales are divided, those low-lying districts which were often traversed by, or were contiguous to, fully formed rivers that seasonably flooded the country through which they flow were characterised by the highest mortality from this cause of death. On the other hand, those districts which had the lowest mortality had a high average level, were situated on or near the water partings where rivers derived their sources, and where the rock-base under their soils consisted of the older geological formations, such as the Cambrian, Silurian, old red sandstone, and mountain limestone, or of the more recent chalk, and where floods were either impossible or only temporary" (*Lancet*, 14th Sept., 1889). This is in perfect harmony with what I have found prevails throughout India in the case of Cancer among the lower animals, as I stated both in my "Tropical Diseases of the Horse" last year, and in other papers published before. With the above remarks of Dr. Haviland, then, I fully coincide, and can only add that an excellent illustration of his observation with regard to the geographical distribution of Cancer may be had in the case of our animals, when I stated that it was for this reason that the Government stud at Hájipur was broken up some years ago, since the number of rejections annually for Barsáti proved a pecuniary loss, and it was resolved to choose stations elsewhere for breeding. I have, moreover, shown that there are stations now in the country in which Barsáti is unknown or but very scarce, and that subjects of the disease show improvement in their condition on arrival in these stations, viz., at Sangor, Jubbulpore, Simla, Mussoorie, Naini-Tal, and other hilly districts; while stations that are flooded practically during the rains and those along the principal river-beds show the largest number of admissions for Barsáti every year. Most unquestionably there is some connection between the rains and Barsáti as witnessed in India; but what that connection is remains to be shown, as may be witnessed in the case of human Cancer.

It is some few years since I pointed out the microscopical

characters of Barsáti in the lower animals, and illustrations of which appeared in this journal at the time of my observations. I have only to repeat what I then showed, that Cancer in the lower animals shows variously shaped cells enclosed in a fibrous stroma, having no intercellular substance. Indeed, the cellular elements, which appear in clusters, are often entirely replaced by simple fibroid tissue, a feature remarkable to the species, and which has led to so much confusion regarding the anatomical characters of neoplasms in general. This peculiarity, we would add, does not characterise Cancer alone, but is common to tissue metamorphosis in the lower animals, and is one reason why tissue-metastasis is, happily, so slow in development in all malignant disease of animals—*e.g.*, Melanotic Sarcoma (Melanosis) in the horse, Tuberculosis in the horse, sheep, pig, etc., and many other diseases. Can we, therefore, say that because Melanosis does not run a rapid course in the horse, it is not Sarcoma; and because Tuberculosis is not so rapid generally in our animals as it is in man, that it is not the same disease? By exercising a very little judgment we shall, I think, learn that there are many little differences which will permit of explanation when they are applied to practice. For a long period our insular prejudices prevented many from profiting by the teachings of every-day experience, and so there are those who tell us that Sarcoma and tubercle are not known in the horse, because, as we have before stated, both these diseases run a much milder course, as a rule, in this animal.

When Metastasis is witnessed in Barsati (as shown by Messrs. Oliphant, Meyrick, and ourselves) there is less doubt shown regarding the malignancy of the disease; but immediately the question of "virulency" is brought in. Why is the disease not more virulent? and why, as shown by numerous *post-mortem* examinations, should Barsáti be so often found transferred in the liver, lungs, and spleen principally, and other organs secondarily? This, we venture to say, is the experience regarding human Cancer, which may be consulted in any work upon Cancer. At the *post-mortem* examination of hundreds of cases of Cancer in man, similar lesions in the liver, lungs, spleen, and other organs have been noted. It is no new observation, but dates from the time of Hunter, and perhaps before then. I believe, however, that, so far as knowledge goes, there are some who, if they admit the presence of secondary disease due to metastasis, expect to find, as in the human patient, abscesses and vomicæ which seldom appear in our animals and but rarely in man. The comparative "latency" in malignant new growths peculiar to some species is striking, and it would be still more interesting if we included tubercle and some other diseases in this series.

Editorial.

THE VETERINARY PROFESSION AND TUBERCULOSIS.

Tuberculosis at the present time is engrossing a large share of the attention of laymen and medical practitioners, because of the injury it is inflicting upon the species of domesticated animals in which it most frequently appears, and the risks to which its prevalence exposes mankind. But it would appear, if we are to judge by what is published in medical journals, that everything known with regard to the scourge is comparatively new, and that the veterinary profession has only lately begun to study it and to indicate its dangers. Never was a statement more unfounded, and the proofs that such is the case are to hand on every side; so that the charge of ignorance or apathy which has been preferred against the profession with regard to the alarming malady, by certain periodicals, cannot be substantiated. If there is any animal disease which, so far as the public health is concerned, veterinary surgeons can claim to have thoroughly investigated, long before the sister profession cared to consider it, it is Tuberculosis; though appeals were directly specially and earnestly to physicians and sanitarians to take it under their cognizance, and so aid ourselves in promoting measures for checking its prevalence, and in this way protecting human life, yet it is only recently that they have listened to these appeals, and they do not appear to be ready, even now, to acknowledge what had been done before they entered the field.

It may be as well, therefore, to glance briefly at what has been accomplished by veterinarians with regard to the sanitary aspect of Tuberculosis, and in a public manner, so that the result of their efforts should extend beyond our own profession. Reference need not be made to what our Continental brethren have done in this direction—the valuable work carried out by Chauveau, Gerlach, Harms, Bollinger, Günther, Leisering, Zurn, Toussaint, Bagge, Semmer, Saint-Cyr, and others for many years—as this has been fully recognised by their medical *confreres;* so our remarks will be confined to what has been attempted in this country in obtaining and diffusing knowledge with regard to Tuberculosis as a disease to be deal with by sanitarians. Previous to 1870 it seems to have attracted very little attention, even as a disease of bovines, and though its contagiousness among them had often been more than suspected, yet that its transmission to other species could take place was apparently not imagined. Before that year Villemin had experimentally demonstrated its transmissibility by inoculation, while Gerlach and Chauveau had shown that ingestion of tubercular matter could likewise produce it.

In a paper read by Professor Walley before the West of Scotland Veterinary Society in 1872 (*Veterinarian*, 1872, p. 634), there is a casual reference to the danger of the flesh of diseased animals: "Here I would say that there are few animals, the subject of tubercle, which

ought to be used for human food, no matter what the monetary loss may be upon such animals." This mention would not get beyond the profession, in all probability. But in 1874 there appeared a lengthy paper in an influential medical quarterly journal (*British and Foreign Medico-Chirurgical Review*, October, 1874), from the pen of Dr. Fleming, in which the subject is dealt with in such an exhaustive manner that subsequent investigation has added but little to what was then pointed out. The identity of the disease in animals and man was shown, its infectiousness in cattle, and the probability of its being so in man was noticed and exemplified, while its dangers were strongly insisted upon, as the following quotations will show: "The bovine species suffers more from the disease than any other, and it is this fact which invests the question of transmission with such extreme importance. . . . The flesh of cattle is consumed as food, and it is essential that it should be in as healthy a state as possible; though the process of cooking might be relied upon, to some extent at least, to annul any pernicious properties it might have acquired through the animal having been in a diseased condition during life. Far otherwise is it with milk derived from the cow. This seldom undergoes any process which would be likely to destroy whatever injurious qualities it might chance to be endowed with through the unhealthy condition of the animal which yields it; and when we reflect that milk enters largely into the diet of young people, is, indeed, the chief aliment of children and infants, whose bodies it builds up, the question of acquiring disease in this way, and especially such a malady as Tuberculosis, becomes one of the gravest moment." "The commencement of Phthisis is generally so insidious in the human species that it is most difficult to arrive with any degree of certainty at the causes which directly induce or favour its development, but, from the evidence before us, it is to be feared that at least one of its sources must be referred to the utilisation of the carcases, but more especially of the milk, of phthisical cattle as food. It is certain that Tuberculosis is a common and a very destructive disease, among dairy cattle especially, and more particularly among those in towns; that the udder of these animals is one of the glands not infrequently involved; that infants and adults consume milk in somewhat large quantity, indeed it is the principle article of diet of young children; and that Phthisis is a very prevalent and fatal malady in the human species, and chiefly among the dwellers in towns and cities.

"From what has been already ascertained, there is every reason to view with grave suspicion the use of the flesh of phthistical cattle as food, especially if the disease is much advanced and the tissues generally involved. But with more reason, the milk from cows affected with Tuberculosis should be prohibited, more particularly for the use of infants, who mainly rely upon milk for their sustenance, and whose powers of absorption are very active. Even if such milk did not possess such dangerous infective properties, its deficiency in nitrogenous elements, fat and sugar, and the increased proportion of earthy salts, would alone render it objectionable as an article of diet. It has long

been known that it was liable to produce diarrhœa and debility in infants; but though many children fed on such milk have died from general or localised Tuberculosis, the part played by this fluid in its production has not been suspected."

These statements were published in one of the most influential medical periodicals of the day, fifteen years ago; and in "Veterinary Sanitary Science and Police" (vol. ii., p. 368), published in 1875, the dangers attending the use of the flesh and milk of tuberculous animals is again strongly insisted upon.

In the following year the same authority delivered a public lecture before the Society of Arts, on the "Contagious Diseases of Animals; their Influence on the Wealth and Health of the Nation, and How they may be Combated" (*Journal of the Society of Arts*, Feb. 25th, 1876, p. 262), when the opportunity was again presented of pointing out the perils which this disease imposed upon mankind and animals. At the meeting of the British Medical Association at Cambridge, in 1881, he also read a paper on the malady, specially dwelling on the dangers to which it exposed the community; and in the previous year (1880) he had published a pamphlet with the title, "Tuberculosis from a Sanitary and Pathological Point of View," in which these dangers were fully detailed; while in 1883 he translated and published the very important report which had been prepared for the International Veterinary Congress held at Brussels in that year, on "The Influence of Heredity and Contagion on the Propagation of Tuberculosis, and the Prevention of Injurious Effects from the Consumption of the Milk and Flesh of Tuberculous Animals."

It should also be mentioned that Professor Walley, in his "Four Bovine Scourges" (published in 1879), treats of Tuberculosis and the risks of its transmissibility to the human species.

Surely, then, after this array of evidence, we cannot be blamed, as a profession, for not having given timely warning of the dangers which such a disease brings into our midst. The fact is that we sounded the warning note long before it would be listened to, and we have never ceased to sound it; now that it has been heard it is scarcely fair to rebuke us because a deaf ear was turned to it. We are not aware that anything has been left undone by the profession in pressing the urgency of Tuberculosis as a question seriously concerning the public health.

TRANSMISSION OF TUBERCULOSIS TO A CHILD BY THE MILK OF A TUBERCULOUS COW.

THE *Revue d'Hygiène* states that Professor Demme, of Berne, reports the case of a child four months old, without any hereditary predisposition to Tuberculosis, dying from Tuberculosis of the mesenteric glands. These glands contained the characteristic bacilli, but they could not be found anywhere else. The child had been fed on the milk of a cow kept specially for this purpose. The animal was killed, and an examination made of its carcase, when the left lung and pleura were found to be markedly tuberculous. A bacteriological examination of the milk revealed, after several unsuccessful searches, Koch's bacillus in the fluid expressed from the deeper parts of the mammæ.

ON THE TREATMENT OF LARYNGITIS CHRONICA SUPERFICIALIS BY MEANS OF INTRALARYNGEAL INJECTIONS.

BY T. ŒSTERMANN.*

VETERINARY surgeons in country and suburban practice, and also Army veterinarians, frequently have their attention drawn to a form of dry irritable cough from which horses in their charge are found to suffer.

This chronic cough, which does not in any way endanger the life of the patient, is nevertheless so obstinate that it is greatly feared, owing to the danger of Pulmonary Emphysema supervening. Many good horses become, from this cause, only fit for slow work. It is, therefore, a matter for congratulation that Dr. Dieckerhoff has discovered that the malady can be cured by means of intra-laryngeal injections. Dieckerhoff has pointed out that the old plan of treating cough by blisters and the usual medicines does not act in a satisfactory manner, and further, that this desirable end can only be obtained by the direct application of remedies to the larynx by means of injections. I am aware that many practitioners have not availed themselves of Dieckerhoff's discovery, because they feared that fatal results might follow; so in order that they may be reassured on this point, I purpose to record a few of the innumerable cases which I have treated by this method.

I. In 1888 I treated a ten year old stallion. It had suffered from cough for six months, and had been treated by a colleague in nearly every imaginable way, without benefit. With his permission, I attempted Dieckerhoff's method, as published in *Adam's Wochenschrift*, 1886 (p. 15). With a laryngeal syringe I injected 30 grammes of ½ per cent. solution of alum. The dose was repeated in three days. On the fifth day I noticed a rather hard, painful swelling in the region of the puncture, which, however, when gently rubbed with ung. cinerium, disappeared sufficiently to allow of a fresh injection being carried out on the eighth day.

The result was so satisfactory that in fourteen days the animal was cured and sent to work.

II. A twelve-year old mare had been a roarer for three years, but the affection was not bad enough to stop her work; she was admitted on the 22nd May, 1889. During the previous six months a cough had been added to the other trouble.

She did not cough much in the stable, but very badly when at work, even to the extent of partial suffocation. On the 23rd May I injected into the trachea 30 grammes of a solution of subnitrate of bismuth (5 : 100). On the 26th the dose was repeated; on the 31st May 50 grammes were injected; on the 4th June 50 grammes more were injected.

June 8th. The animal was exercised for half an hour; she perspired freely, but did not cough. After the exercise another injection was made.

June 12th to 20th. The patient has been trotted and galloped for half an hour daily, and has not coughed. On the 20th she was returned to her owner.

III. A four and a half year old gelding has had a cough for some months, and the usual treatment has had no effect. There is a slight nasal discharge and the throat is very tender. Patient coughs frequently in the stable.

Treatment much the same as in Case II. The horse was admitted on the 23rd May, and discharged completely cured on the 5th June. I saw the animal again on the 27th June, and it was still well.

The author records several other cases which had suffered for several months from chronic cough. He treated these cases as already described,

* Translated from *Adam's Wochenschrift*, No. 36, for September, 1889.

and returned them cured to their owners in a short time. One case he sent back in eleven days.

In concluding, he states that cures will only occur when there is no bronchial or pulmonary complication—such as Emphysema, for instance.

Reviews.

VETERINARY MEDICINES: THEIR ACTIONS AND USES. By FINLAY DUN. Seventh Edition. (Edinburgh: David Douglas. 1889.)

When a medical book reaches a seventh edition, there is the strongest possible evidence of its utility and popularity. The first edition of Mr. Dun's "Veterinary Medicines" was published thirty-five years ago; the sixth edition in 1882. Each edition shows the progress which has been made in pharmacology and therapeutics, and the additions to the list of agents forming our *materia medica*. The edition just issued marks, perhaps, a greater advance than any of its predecessors, and appears to represent the present position of our knowledge of drugs and their actions and uses. Many improvements have been effected in the arrangement of matter and in the manner in which the book has been got up; and good authorities have been consulted and borrowed from in order to render it complete in its information, though the number is comparatively small, especially if we take into account the number of foreign writers whose books have largely contributed to this subject, such as Ellenberger, Schütz, and Siedamgrotzky's work, "*Lehrbuch de Allgemeinen Therapie der Haussaügethiere*," that of Röll, "*Lehrbuch der Arzneimittellehre für Thierarzte*," that of Fröhner, "*Lehrbuch der Thierärztlichen Arzneimittellehre*," that of Dieckerhoff, "*Lehrbuch der Speciellen Pathologie und Therapie für Thierarzte*," and others.

The work has our hearty recommendation, and will prove as acceptable to veterinary surgeons and students as heretofore. In the next edition it is to be hoped the publishers will indulge purchasers with cut leaves; in these days of limited leisure, few have patience to sit down with a paper-knife to separate the leaves of a book of more than 700 pages.

A TEXT BOOK OF PHYSIOLOGY. By J. G. MCKENDRICK, M.D., LL.D., F.R.S. Vol. II. (Glasgow: J. Maclehose and Son. 1889.)

Not long ago we were able to direct the attention of the veterinary profession to the first volume of Professor McKendrick's "Physiology" as a treatise or text-book of the highest order, and we felt ourselves justified in recommending it to the students no less than to the earnest practitioners of veterinary medicine, as a most excellent guide in the study of vital phenomena. The author says in his preface: "It has been my endeavour throughout this volume to lay before the reader the main facts of physiological science, and, as far as possible, to state these facts in terms of measurement. The time has gone past for vague generalities in the description of physiological phenomena, and phy-

siology is, year by year by year, drawing nearer to her true position as a science, dealing as strictly with the phenomena and basis of organic life as physics deals with those of dead matter. At the same time, it is impossible altogether to resist the promptings of speculative inquiry, and I have accordingly yielded to these in several instances—in particular, in treating of the phenomena that lie behind a carthiac contraction, and in discussing the intimate nature of nervous action."

Professor McKendrick places the facts of physiology before the reader in such a manner as to combine lucidity and precision with all the deep interest and attractiveness that attaches to the phenomena of life; and with originality of matter and views—for much of his own valuable researches and opinions are given here—he makes available the most recent investigations of others, in order to render the knowledge of structure and function as complete as possible. We know of no better book on physiology than this, and feel assured that our opinion of it will be endorsed by everyone who has watched the progress of this science, which the author has done so much to advance and adorn. The woodcuts are excellent, and the paper and typography all that need be desired. We might make long quotations from the work in support of the opinion we have advanced with regard to it, but forbear presenting disjointed fragments, and so curtailing the pleasure and satisfaction which those of our readers who obtain it will derive from its perusal and study.

A Text-book of the Practice of Equine Medicine. By W. Robertson, F.R.C.V.S. Revised by J. Penberthy, F.R.C.V.S. Second Edition. (London: Baillière, Tindall, and Cox. 1889.)

The lamented death of the late Professor Robertson threw the task of completing a second edition of his text-book on his colleague Professor Penberthy; for we understand that previous to his decease he was already engaged in preparing the present issue.

We spoke in favourable terms of the first edition, published in 1883, and the opinion we then gave we can now repeat. Professor Penberthy appears to have done his best to make the work as acceptable as a useful reference book to veterinary surgeons, as the previous has proved itself to be. Professor Robertson's professional skill was undoubtedly of a high order, but his literary style was peculiar, so that his sentences were often involved and somewhat perplexing. His reviser could not do much to amend this, unless he had pretty well re-written the book, which he has not ventured to do; but he has contrived to perform his share so carefully and adroitly that it is difficult to trace his individuality in his emendations and additions, by which he has rendered the work perfectly modern, *i.e.*, up to date. We have only been able to find one paragraph which the reviser may think fit to correct in the next edition; this is on page 439, where, in dealing with the treatment of Roaring, it is stated, "In the Veterinary University of Berlin, Professor Müller has removed the left arytenoid cartilage and the left vocal cord in a large number of cases, which have been very much benefited. The removal

is effected by means of a longitudinal incision through the body of the thyroid cartilage," etc. Now, Professor Müller has never operated for this affection, we believe, but his colleague, Professor Möller, has; and neither the latter, nor yet any other veterinarian on the Continent, so far as can be ascertained, has ever removed the vocal cord and arytenoid cartilage at the same time, for the relief or cure of Roaring; while no one would be so imprudent, it is to be hoped, as to make a longitudinal incision through the *body of the thyroid cartilage*, as this would be a serious and, in all likelihood, an irreparable blunder.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD OCTOBER 9TH, 1889.

Professor J. WORTLEY AXE, President, in the chair.

Present :—Professors Duguid, McCall, Pritchard, and Walley; General Sir F. Fitzwygram, Dr. Fleming, Sir Henry Simpson; Messrs. J. D. Barford, Thomas Briggs, T. Campbell, B. Cartledge, Thos. Greaves, Wm. Hunting, H. Kidd, J. McCall, Jas. F. Simpson, Jas. Storrar, P. Taylor, W. Whittle, W. Wilson, Wm. Woods, F. W. Wragg, — Thatcher (Solicitor), and the Secretary.

Absentees.

The SECRETARY stated that he had received letters from the following gentlemen regretting their inability to attend the meeting :—Messrs. Perrins, Lambert, Cox, and Simcocks.

Presentations to the Library.

The SECRETARY stated that the following presentations had been made to the Library :—By Professor Brown, copy of the "Annual Report of the Agricultural Department of the Privy Council;" by Mr. Finlay Dun, the Seventh Edition of "Veterinary Medicine;" by Regimental Surgeon J. A. Meredith, A.V.D., "Report on the Recent Outbreak of Anthrax amongst the Horses of the 6th Regiment of Dragoon Guards."

A vote of thanks was accorded to the donors.

Correspondence.

The SECRETARY said he had received two applications for the diploma of the Royal College—from Mr. Wm. Jack and Mr. J. F. Healey. He had also received a letter from a registered practitioner, who had lately graduated and obtained his diploma, asking that his name might be expunged from the list of existing practitioners. There was also a letter from a member of the profession, stating that he had lost his diploma, and asking that another certificate might be granted to him.

Mr. JAS. F. SIMPSON moved that a certificate be granted, providing evidence were given that the diploma had been lost.

Mr. PETER TAYLOR seconded the proposal, which was agreed to.

The SECRETARY read a letter from Mr. Dudgeon on behalf of the North of England Veterinary Medical Association, and also a letter from Mr. Villar on behalf of the Central Veterinary Medical Society.

The letters were referred to the General Purposes Committee.

The report of the Finance Committee was received and adopted.

Report of the Registration Committee.

The SECRETARY read the report, from which it appeared that the Committee recommended that steps be taken to remove the name of Mr. S. Gibbs from the Register, his conduct being disgraceful in a professional respect.

Professor WALLEY said that if there was no appeal against the conviction, and there was no attempt to show the conviction was wrong, he would move that Mr. Gibbs's name be removed from the Register.

Sir HENRY SIMPSON said that he had had something to do with bringing the matter to the attention of the Council, and he thought that the Council, before going to the length of striking the name off the Register, should tell Mr. Gibbs that the Council had deliberated upon his case, and if he wished to appeal he should attend on a particular day.

Professor WALLEY moved that the recommendation of the Committee be adopted, and that the usual course in such matters be taken.

Mr. J. F. SIMPSON seconded the motion, which was carried.

On the motion of Dr. FLEMING, seconded by Mr. PETER TAYLOR, the report of the Registration Committee was adopted.

Report of the General Purposes Sub-Committee.

The SECRETARY read the report, showing the improvements to the museum and the work still in progress.

On the motion of Sir HENRY SIMPSON, seconded by Mr. WRAGG, the report was adopted.

The SECRETARY read the Obituary List.

Mr. WILLIAM WILSON said that since the last meeting of the General Purposes Committee the College had received a portrait, and he hoped that due notice would be taken of its reception.

Mr. KIDD gave notice that at the next quarterly meeting of the Council he should move that a new charter be obtained for the purpose of amending some of the existing bye-laws, and making certain alterations.

Professor WALLEY asked if anything had been done with reference to the colonial and other colleges as to the business brought before the Council on a previous occasion.

The PRESIDENT said a considerable number of prospectuses had been received from various foreign and colonial schools, and that the attention of the Council would shortly be called to the matter.

The International Congress.

Dr. FLEMING asked to be permitted to state that he had attended the International Congress at Paris, and other members of the profession were also present. Their French colleagues had acknowledged them as English practitioners, and had elected him as the representative of English veterinary surgeons. He regretted that the Royal College was not officially represented at the Congress, as nearly every other college in Europe and America was represented.

Sir HENRY SIMPSON said that the whole profession was indebted to Dr. Fleming for having attended the Congress, and he trusted another opportunity would not be allowed to go by without the College being officially represented.

Professor WALLEY moved, "That this Council records its appreciation of the kindness accorded to our colleagues and friends during their visit in Paris at the International Congress."

Mr. WOODS seconded the motion, which was agreed to.

Motion by Mr. Hunting.

Mr. W. HUNTING moved, "That it be an instruction to the Secretary that

every candidate for the diploma be required to produce evidence of age at the time of paying his fee to the Secretaries of the Examining Board." Unless the Council wished the matter to be settled at once, he would propose that it be referred to the General Purposes Committee. He thought that before a student came up for his Final Examination he should produce proof of having arrived at the necessary age.

Sir HENRY SIMPSON asked whether Mr. Hunting's motion referred to the Oral Examination or to the Final Examination.

Mr. HUNTING said that he would alter his motion thus, "That all students presenting themselves for final examination should give proof of their being the proper age before they undergo that examination."

The motion was agreed to.

Written Examinations.

Mr. T. BRIGGS moved, "To bring forward for discussion the subject of instituting written examinations in addition to the present Oral and Practical Examinations. He suggested that the motion should be submitted to the General Purposes Committee, who, he thought, could better formulate a system by which it could be effectively carried out.

Mr. PETER TAYLOR seconded the motion, which was agreed to.

Wood Pavement.

General Sir FREDERICK FITZWYGRAM moved, "That the General Purposes Committee be instructed to obtain an estimate for laying down wood pavement in front of the College. He asked that that might be done, and that the Committee present its report at the next meeting.

Professor WALLEY suggested that the committee should be also asked to inquire whether the neighbouring proprietors would join in the undertaking, in which case the expenditure would be materially lessened.

Mr. PETER TAYLOR suggested that the cost of paving with asphalte should be ascertained.

Sir HENRY SIMPSON said that the public authorities were not necessarily bound to accept any proposals made by the College.

The PRESIDENT said it would be desirable to obtain some guarantee that the wood pavement would be maintained after being laid down.

Mr. WRAGG thought that the Council Chamber itself, where the noise of the traffic was most heard, should be first altered. Some opinion might be obtained whether or not the acoustic properties of the room could not be improved.

Mr. GREAVES said he thought the difficulty might be obviated by having double windows in the building.

It was agreed that the matter should be referred to the General Purposes Committee.

Professor WALLEY moved, "That the percentage of marks to be obtained by students in the educational examination be raised from 30 to 50 per cent." He thought the Council would agree that the time had come when something ought to be done to approximate the value of the examinations to those of the medical profession. He did not suggest that the change should come into operation at once, but that a reasonable time be allowed for candidates to prepare themselves. He would add as a rider to the motion that the raising of the percentage of marks should not come into operation for eighteen months or two years.

Mr. J. F. SIMPSON said he was very glad to see that the motion came from the principal of a school. He should like to know whether a result was kept of the number of rejections of unsuccessful men who had applied for admission to the various schools.

The PRESIDENT said that no record was kept except the certificates received from the principals of schools.

Mr. MCCALL said that in Glasgow the examiner granted the certificate, and it was then forwarded to him to sign. When the student came up for his examination the document was placed in the Secretary's hands, and he was then allowed to go up for examination. For the last two years 50 per cent. had been the standard. He should think that about one-third of the students were rejected at the First Examination.

Sir HENRY SIMPSON said that Professor Walley's proposal seemed to resolve itself into a new regulation.

The PRESIDENT said that it would be only a standard agreed upon by the Council.

Sir HENRY SIMPSON asked whether it would not be better to say that it be an "instruction" that the percentage of marks be fifty.

Mr. WILSON called attention to the fact that at page 61, section 2, of the Regulations, it was stated that "The nature and extent of this examination shall be fixed by the Council from time to time."

Mr. J. F. SIMPSON said he would be very glad to second the motion if Professor Walley made it eighteen months.

Professor WALLEY said he would do so with pleasure, and would say "That it applies to examinations in January, 1891."

Dr. FLEMING asked whether there was any record of the number of marks the students were obliged to obtain.

Professor WALLEY said that there was.

The PRESIDENT asked Professor Walley whether he meant the maximum to be 50 per cent. upon each subject, or 50 per cent. upon the total.

Professor WALLEY said that at the present time the examiner demanded 30 per cent. in all cases. He wished to make it clear that it should be 50 per cent. on each subject on and after the 1st January, 1891.

Mr. HUNTING said he did not think it would be possible for the Council to tinker up the examinations in the way they were attempting. They had absolutely delegated duties to two educational bodies, one for England and one for Scotland, and he did not see how the Council were to instruct them as to the number or quality of the questions set at the examinations. A copy of all questions in each examination had, he thought, to be laid before the Council, and until that was done they were simply working in the dark.

Professor WALLEY said that the matter would come up for consideration under Mr. Wilson's motion. The question for the Council to decide then was whether or not they should raise the percentage of marks, and that it should come into operation in January, 1891.

The motion was put and agreed to.

Proposed Scholarship.

Professor WALLEY moved, "That this Council take into consideration the advisability of instituting a scholarship for the purpose of encouraging successful students to continue their scientific studies." The time had arrived, he said, when the Council should do something towards elevating the profession by encouraging students and graduates to go on with their education after leaving the College. In all medical universities and schools there were bursaries of great value by which students were enabled to continue their studies for one, two, or three years, and he thought it was high time that some such course was adopted in their own Corporate body. He considered the College was now in such a position that it could afford such a burden as he suggested. He did not say how much money should be given, or how long it should continue. All he wished was that the Council should take into consideration the advisability of instituting a scholarship. The medical pro-

fession were constantly saying that veterinary graduates were not educated up to the standard they should be, and that they did not know pathology and biology. Veterinary surgeons were not drawn, as far as money was concerned, from the same class that medical students were, and there was now only Sir Frederick Fitzwygram's prize to encourage veterinary graduates to improve themselves and raise the standard of the profession. That prize had no conditions whatever attached to it, nothing being said about studying for six months or anything of the sort. If necessary he would willingly refer the subject of his motion to a committee for consideration and report.

Mr. WILSON, in seconding the motion, said the General Purposes Committee could fully consider the question, and he was sure would arrive at a conclusion which would be satisfactory to the profession. It was evident, when a young man showed extraordinary skill, he ought to be put in a position which would assist him in prosecuting his studies still further after having obtained his diploma. There were many young men who would make ornaments to the profession had they the means to do so. The ability was there, but up to the present time the means had been wanting.

Mr. J. F. SIMPSON said he heartily agreed with the spirit of Mr. Walley's motion, but thought the matter, being purely one of finance, ought to be referred to the Finance Committee.

Sir HENRY SIMPSON contended that it was a matter for the General Purposes Committee, but he thought there could be no objection to both committees being set to work. The Finance Committee would be able before the next quarterly meeting to report as to the actual state of the finances, and the Council would then know what money it had to deal with.

Professor WALLEY said that in order to bring the matter to a termination he would move that the question be referred to the General Purposes Committee for consideration and report.

Mr. WILSON seconded the proposal, which was then put and carried.

Tuberculosis a Contagious Disease.

Professor WALLEY moved, "That, in the opinion of this Council, Tuberculosis in animals should be dealt with as a contagious disease in so far, at least, as actually affected animals, or animals suspected of being affected with the disease are concerned." He said the question of the recognition of Tuberculosis as a contagious disease had been under the consideration of the Privy Council for a considerable period, but hitherto no actual steps had been taken for dealing with it as such. He thought nobody would disagree with him when he said that Tuberculosis was a most deadly disease, and undoubtedly could be transferred from animals to man, and therefore should be dealt with in some form so as to reduce the danger attendant upon its existence among animals. At present inspectors were absolutely helpless in removing animals from byres and in preventing the milk from cows suffering from the disease being added to the general yield of milk and scattered abroad throughout the kingdom for dietetic purposes. The time had certainly come when the proper authorities, be it the Board of Agriculture or any other body, should recognise the disease in some degree as contagious. He would not go so far as to class it with other contagious diseases, but he would certainly ask for power to be given to inspectors to seize diseased animals exposed for sale. He was sure that if pressure were put upon the proper authorities by such a body as the Royal College something might be done in the matter. He would also suggest that the terms of his resolution should be forwarded to the proper body which would have to deal with the matter.

Professor DUGUID said that in dealing with the kiseases of people the Local Government Board would have to be approached, but with regard to the communication of diseases from one animal to another the Board of Agri-

culture would have to be addressed, but it must be understood that the latter body had no concern whatever with public health matters. The Local Government Board was undoubtedly the right body to apply to.

Mr. WILSON seconded Professor Walley's motion. In doing so he said he thought it was the Board of Agriculture that must be approached. The question was of great importance, and it was highly desirable that the disease should be grappled with at once. He did not think it should be brought forward under the compulsory slaughter clauses, but under the Contagious Diseases (Animals) Act for the purposes of isolation, and preventing the sale of milk from diseased cows.

Professor DUGUID observed that the sale of diseased meat lay entirely with the sanitary authorities, under the direction of the Local Government Board, as did also the inspection of cowsheds and the sale of milk.

Mr. HUNTING thought if the gentlemen on the Council who were connected with the Agricultural Department used their influence there might be a chance of the matter being thoroughly brought forward. Power should be given to bury the carcases of diseased animals, because they were a dangerous commodity.

Dr. FLEMING said he questioned whether the Council had any power to act in the matter, having hitherto acted solely as an examining body. He did not see how they could approach any body unless they were willing to adopt the functions of a scientific body, which might be consulted and authorised to give an opinion on such questions.

Professor WALLEY reminded the Council that it had taken up similar duties before. If the College wished to keep its position among the community it was time it moved in a different course from that which had been followed in the past. All he asked the Council to do was to recognise the necessity which existed for the proper bodies to deal with Tuberculosis as a contagious disease.

Sir HENRY SIMPSON said that if it were desirable for the Council to take up scientific subjects this was one which they might proceed with. They had better opportunities of judging what was good or bad for the community as regards disease amongst animals than any other body, and they ought if possible to take the initiative in the matter, which undoubtedly before long must be settled in the manner desired by Professor Walley and others. If they would thrust the matter home they must enlist the sympathies of Members of Parliament, and have a deputation to the Local Government Board. Last year the Council had been honoured with a request from the Royal Commission on Horse Breeding, which was a great compliment, and he hoped they would recognise that their sphere was not to sit and legislate for themselves alone, but for the community at large. If the resolution were proceeded with, and a copy of it sent to the Local Government Board, it could do no harm, but might do an immense amount of good.

Mr. GREAVES said that if the College took the steps proposed the country ought to be grateful. The resolution met with his entire approval, and he should be delighted to see it carried.

Professor DUGUID said the first question any public department they might approach would ask was, Were they prepared to say that the disease was due to contagion, and that alone? In many cases the disease was hereditary, and if that was admitted they would be asked to show the percentage of cases due to contagion. The whole case would then fall to the ground. There was the further difficulty of seizing diseased or suspected animals, and the question of paying compensation, and the scale of it. The whole matter had been under consideration for years, but no solution of the problem had yet been arrived at.

Professor PRITCHARD moved that the motion be rejected, mainly on the

ground that the majority of cases of Tuberculosis were due to hereditary predisposition and not to contagion.

Professor DUGUID seconded the motion.

Professor PRITCHARD'S motion was then put and lost.

The original motion was then put and carried.

On the motion of Mr. HUNTING, seconded by Mr. KIDD, it was resolved, "That the Secretary be instructed to forward a copy of the resolution to the Board of Agriculture, the Local Government Board, and the Royal Agricultural Society."

Veterinary Education and Meat Inspection.

Professor WALLEY moved, "That a committee be appointed to take into consideration and report to the Council at its next meeting—(*a*) As to the best means of approaching the Government with a view to the obtainment of a grant in aid of veterinary education in this country. (*b*) As to the best means of directing the attention of Government to the urgent necessity which exists for legislative interference in the matter of meat inspection." He thought he should be supported by the Council when he said that it was high time that the Government of the country should do something for the veterinary profession. All other learned bodies had received Government assistance, but this body had received none; and the Government, he urged, ought to recognise the importance of their profession. As to the question of meat inspection, he considered the present condition of things a disgrace to any civilised country, for year after year men were employed in inspecting meat who knew positively nothing about it. The medical profession charged them with knowing comparatively nothing about meat inspection, and that they were not the proper body to consider it. In the name of all that was good, who but veterinary surgeons were the proper body to do so? Professor Walley then quoted from lectures delivered in American veterinary colleges, showing that meat inspectors were obtained from the ranks of graduates in veterinary medicine. It was quite time, he said, that this country should move in the matter.

Professor DUGUID said he thought the first part of the motion inconsistent, seeing that they were on the one hand trying to establish scholarships themselves, and on the other hand approaching the Government for aid. He said he thought the Government would be likely to help the College if it only made an effort to help itself. The Council had a strong case with which to go to the Government, and i they could only bring a little political power to bear he did not see how the Government could give a refusal.

Mr. WHITTLE seconded the motion, which was agreed to.

A Committee was then formed of the following gentlemen, to whom the matter was referred:—The President, Dr. Fleming, Mr. Hunting, Sir Henry Simpson, Professor Walley, Gen. Sir Frederick Fitzwygram, Professor Duguid, Professor McCall, Professor Pritchard, and Professor Williams, with power to add to their number.

Farriery.

The PRESIDENT said he wished to call the attention of the Council to a small but interesting matter. For many years past great complaints had continued to be made by persons interested in the welfare of horses about the backward condition of the farriers' art in this country. Recently small attempts had been made by the Royal and other Agricultural Societies to overcome the many abuses associated with horse-shoeing by offering prizes for competition among local shoeing smiths. More recently, he believed, a few members of the profession residing in London had made a move in the same direction. Feeling that the time had come when something of a permanent character should be done to improve the art of farriery, he had

thought that if these scattered attempts could be united and properly organised, great and lasting good would accrue to the cause. In any movement of this kind he thought the Royal College should occupy a forward position, and it was on this account that he desired the co-operation of the Council in a scheme which he was now seeking to develop. He felt the time had come when some educational and certificating body should be established in the interest of farriery. With this object in view he had already brought the matter to the notice of the Veterinary Committee of the Royal Agricultural Society, and he had reason to believe that the question would receive their careful consideration. He ought also to say that the Farriers' Company had expressed an earnest desire of doing something in the same direction. It had occurred to him that if these three bodies could be brought together in concerted action, the desirability of taking steps to improve the art of farriery might be fully considered, and some scheme decided upon for giving effect to their decision. At present he simply desired to ask that the Council would nominate two or three of its members to form, with others from the Royal Agricultural Society, and he hoped also the Farriers' Company, a joint committee to take action in the matter.

Professor PRITCHARD asked whether communication had been made with the Farriers' Company on the subject.

The PRESIDENT said both that Company and the Royal Agricultural Society had been conferred with, and he hoped to secure the co-operation of both. He felt encouraged to proceed, inasmuch as he had received unsolicited promises of help from gentlemen who wished to see a good result of the movement.

Sir HENRY SIMPSON said the President and one or two other members of the Council were members of the Royal Agricultural Society, and they would be able to approach that Society and the Farriers' Company also if necessary.

The PRESIDENT stated that they could do so.

Sir HENRY SIMPSON moved that the gentlemen on the Council who were also members of the Veterinary Committee of the Royal Agricultural Society, with the addition of Professor Pritchard, be appointed to confer on the subject.

Mr. J. F. SIMPSON said he thought they ought to watch the interests of their own profession first, and see, before they proceeded at any length, the result of the prosecution of a man who put over his door "Veterinary Forge." They ought to be careful, and not put greater power into the hands of the farriers.

The PRESIDENT said the institution would be called "The Institute of Horse-shoeing," and he thought the term "farrier" would soon become obsolete.

Professor DUGUID suggested that the Yorkshire and Lincolnshire Agricultural Societies, who first took up the question years ago, should be consulted with a view of getting a member or two on the Committee. The Bath and West of England Agricultural Society ought, he thought, to be also consulted.

The PRESIDENT concurred. He agreed they should have as much influence as possible.

The following Committee was then appointed:—The President, Dr. Fleming, Professor Pritchard, Sir Henry Simpson, Professor Brown, and Mr. Hunting.

SPECIAL MEETING.

On behalf of General Sir Frederick Fitzwygram, who had left the Council Chamber, Mr. J. F. SIMPSON moved, "That in the Final Examination for diploma, the term 'Theoretical' be substituted for 'Oral.'"

Dr. FLEMING objected to the use of the word "Theoretical," inasmuch as the subjects were practical. In justice to the subjects and to the examination let the term "Oral" remain.

Not being seconded, the President did not put the motion.

Alteration of Sections.

Mr. WILLIAM WILSON moved: "That Section 2, p. 61, be amended thus: By striking out the first sentence of the clause and substituting in lieu thereof, 'Students who do not produce one or other of the certificates referred to shall be examined by a Board of Examiners appointed by, and under the direction and supervision of, this College, to whom they shall report the result of the examination, which shall be uniform and applicable to the whole of Great Britain.'"

Professor WALLEY seconded the motion.

Dr. FLEMING suggested that "United Kingdom" should be substituted for "Great Britain."

The motion, as amended, was then put and carried.

Mr. WILSON further moved, "That sub-section 2 of section 1 of the Regulations for the Examination of Veterinary Students in General Education shall be altered by inserting the word 'or' between the word 'first' and 'second' on the first line thereof, and by striking out the word 'third' on the second line thereof."

The PRESIDENT thought an injustice might be done if that alteration was agreed to.

Professor WALLEY supported the President.

Mr. HUNTING seconded the motion.

Mr. J. F. SIMPSON supported the resolution, which was put and carried.

Sir HENRY SIMPSON suggested that the committee meetings should be held on the day preceding the quarterly meeting, as so much business had now to be transacted. He thought also that the Council meetings might be held at an earlier hour. The work was increasing almost every day, and some attempt ought to be made to keep pace with it.

Professor WALLEY moved, and Sir HENRY SIMPSON seconded, a vote of thanks to the President, and the proceedings terminated.

ROYAL VETERINARY COLLEGE.

PROFESSOR YEO, F.R.S., King's College, delivered the inaugural address at the Royal Veterinary College, Camden Town, on October 1st.

Col. Sir Nigel Kingscote, K.C.B., presided, and the theatre was filled to overflowing with students and visitors.

The CHAIRMAN, in opening the proceedings, said: Gentlemen, my pleasing duty is first of all to call upon Professor Yeo to deliver his introductory address. No words of mine are needed to say who he is, for, as you know, he is one of the greatest physiologists of the day; one who has given great attention to cattle diseases, and also, as some of you know, is an Examiner at the Royal College of Veterinary Surgeons. Without saying more, I will ask him to give his introductory address.

Dr. GERALD YEO, who on rising was greeted with loud applause, said:

Mr. CHAIRMAN AND GENTLEMEN,—I have to thank the Principal for the honour he has done me by inviting me to open the session at the Royal Veterinary College. I undertake the duty with all the more pleasure, since I have not been asked to give a formal inaugural address, and my remarks need not therefore assume the form of advice or a lecture as to the future industry of the beginners, or their moral guidance.

I am proud to have the honour of welcoming the students, new and old, to

an institution which has made such enormously rapid strides towards perfection within the memory of many here present, and one which now renders the very important public service of producing an adequate supply of well-educated, scientific veterinary surgeons.

Having had the advantage of being a little behind the scenes as examiner, I can speak very confidently as to the kind of moulding the students receive during their short curriculum at this College, and I am glad to say that I know it to be excellent and practical in every respect. Perhaps there is not quite so much required from the veterinary student as from his unfortunate fellow student of medicine in the sister profession; but it is, I think, none the less creditable that I have found that the general average of the students taught here, show a more accurate and useful acquaintance with the subjects of examination than do the candidates of any other qualifying body for which I have had the honour of examining.

When we compare the remarkably short time required by this school to attain its present admirable state of efficiency, with the centuries required to elaborate our modern medical schools, we must admit that education in veterinary science is rapidly overtaking that in human medicine, and in many respects may be said to be quite on a par with, if not in advance of, the elder sister.

I am glad to reflect that the time is now past when a hard and fast line of demarcation was supposed to exist between the study of veterinary and human medicine, and every day we find rapidly disappearing that mutual ignorance of each other's methods of study, which engendered distrust between the two professions. It is quite certain that in the general study of Pathology the two professions must be united. As there is but one Physiology for man and the lower animals, so there is but one Pathology. Now-a-days veterinary surgeons more fully recognise the great value of the careful study of morbid appearances, of the innumerable *post-mortem* records made by human pathologists in past years, of the microscopical work done in our more scientific pathological laboratories, and the absolute necessity of trying to find out the cause and course of disease before attempting its cure or prevention. On the other hand, human pathologists are now quite convinced that the most careful study and record of human pathological changes cannot give them all the knowledge they require about the causes of disease. They see that, as well as observing her abnormality, they must question Nature by experiment, and this can only be done in the domain of the veterinary pathologist, where induced disease of the lower animals may be experimentally studied. The experimental pathological laboratory now-a-days bears the same relationship to morbid anatomy as the physiological laboratory does to the dissecting room, and is therefore absolutely essential for the advance of pathological science. Moreover, the pathology of the lower animals has the advantage of offering a much less complicated field of study than the pathology of man. It does not comprise the many diseases brought on by the various occupations and habits of civilisation, by the vices of mankind, or by that human scourge, Syphilis.

The great progress in pathological knowledge made in the recent part of this century must be attributed to the fact that experimental researches into the cause of disease in the lower animals had been added to the ordinary observations in human pathology. Were it not that the curricula are already overloaded, I would like to see the student in each profession attending a course of pathology in some school belonging to the other. I am glad to say there already exists at least one laboratory where pathology may be studied with equal benefit by human and veterinary medical students, and in which admirable work both in human and comparative pathology has already been done. It is hardly necessary to say that I allude to the Bacteriological

Laboratory in King's College, where owing to the facilities given him by the Principal and authorities of the Royal Veterinary College, Professor Cruikshank is able to devote special attention to the pathology of the domestic animals.

It must be admitted that the prevention of disease is the highest aim and the common goal of all medical art, and it is curious to find that comparatively little importance is given to preventive measures in human medicine. The greater part of our therapeutic science is devoted to the relief of suffering caused by ailments which physicians seem hardly to hope ever to succeed in eradicating. But in veterinary science, in the majority of cases, prevention of disease takes the foremost place. In the lower animals disease in most cases means depreciation of value or worthlessness, and if the patient cannot be perfectly cured it may as well be destroyed, so that palliative treatment is not of much value.

Among the preventive measures which nowadays receive most attention, Inoculation must be given pre-eminence, and the progress achieved in this department affords a good example of the rapid advance made with the new methods of research in pathology.

In olden times these matters moved slowly. A few years after the year 1721, when inoculation with the virus of Smallpox was introduced into England, it was well known amongst the peasantry that anyone who had Cowpox was protected against the more formidable disease. Yet inoculation with the virus of Smallpox remained in vogue for over a hundred years after that time. It was not until the year 1774 that Mr. Jesty, a sturdy farmer, dared to brave the prejudices of his neighbours—who asserted that his patients would acquire the characters of the infected beasts, and vaccinated himself and family. It was about eighty years after that date, a period including all Jenner's energetic work, that vaccination was made compulsory. The history of vaccination also shows that it is extremely difficult to arrive at exact conclusions in the case of human patients, and even now there are many who doubt its advisability as at present carried out, and the question may be said to be still *sub judice*.

On the other hand, the rapid paces with which such questions advance, by active experimentation in the case of the lower animals, may be recognised from the following facts. Little more than two years after M. Pasteur commenced the study of the silkworm plague, he had formulated a system by means of which he mitigated the virulence of the disease. In some twenty years after Davaine had first mentioned the bacillus of Anthrax, Koch had worked out in detail the life-history of the organism, and a couple of years later the virus could, by special modes of culture, be robbed of its virulence in such a way as to enable protective inoculation to be adopted. In the same way, within the space of a few years, the organism causing so-called Chicken-cholera was detected, cultivated, attenuated, and the disease checked by preventive inoculation.

Did time permit, I might name many more cases where experiment promises to lead to prophylactic measures; and at this moment we are receiving more and more reassuring accounts as to the prospects of finding a preventive for that uniquely fatal disease, Rabies.

There certainly seems to be a great future in store for preventive inoculation. There is no obvious reason why all kinds of communicable disease may not be prevented by this means. But we must guard against being carried too rapidly forward by the flood of this mode of treatment. In several instances its efficacy is still doubtful, in more than one it has so far proved powerless, and it may even be a means of propagating disease if indiscreetly employed. Among the diseases in regard to which the question seems in some minds not to be definitely settled is the peculiar contagious

Pleuro-pneumouia of cattle, a disease which has cost Great Britain a million in the last twenty years, a disease which is painfully interesting to the agriculturist from its contagious and fatal nature, and most interesting to the pathologist for many special peculiarities.

How is this disease influenced by inoculation?

In considering such questions as this, care must be taken not to put aside too lightly long-established vulgar belief simply on the score that it is not founded on a scientific basis, or by scientific observers. We must remember that vaccination, which certainly was useful when Small-pox was more rife, originated from common hearsay and vulgar belief, and now is only supported by a few general principles which remain in the category of pure empiricism. In the case of the lower animals, where experimental research is feasible, the value of preventive inoculation should be scientifically tested. In Pleuro-pneumonia either it is useful or harmful. In the one case it should be encouraged; in the other prohibited. From a scientific point of view its efficacy cannot be admitted to be an established fact; and in almost every item in the evidence of an unscientific kind we find opinions diametrically opposed to one another. The characteristics of any given disease that would *prima facie* suggest that it might be checked by preventive inoculation may be thus enumerated:—

A. The disease should be communicable.

B. One attack should give immunity from (*a*) subsequent contagion; (*b*) subsequent inoculation.

C. Inoculation should give immunity from (*a*) subsequent inoculation; (*b*) subsequent contagion.

D. Exceptional cases, taking the disease a second time, or after inoculation, should run a modified course.

As far as time allows, I shall consider the position of Pleuro-pneumonia in respect to each of these points. We find at the outset that it is not communicable in the widest sense of the word. One of the great peculiarities of this disease is that it cannot be given to an animal by any indirect means that have yet been tried, while at the same time it is extremely contagious, *i.e.*, easily transmitted from animal to animal. In this respect it seems to stand alone among the diseases of the lower animals. The pathologist finds it quite impossible to transmit the disease artificially by mediate communication, and the practitioner finds it impossible to control its rapid spread through a herd when introduced by a single diseased animal. There seems no positive evidence that the disease can be communicated even by the medium of stalls lately inhabited by diseased animals. One might surmise that the virus would seem to thrive only in the warm moist breath of the animals themselves, as if, indeed, the organism—if the virus really owes its activity to one—was, during the active pathogenic stage of its existence, intensely susceptible to changes of temperature. Though the pulmonary disease cannot be set up artificially, there is no doubt that the fluid from the diseased lung, if introduced into the connective tissue, causes a specific local change in the lymphatic system in many respects like that of the lung. The fact that the lung disease is not, in the widest sense, communicable is a strong, but not a conclusive argument against inoculation. To me the experiments on this question simply suggest that the disease is local in origin, and that the virus travels slowly by the lymph channels without apparently affecting the general system through the medium of the blood.

With regard to the statement that one attack gives immunity from a recurrence of the disease, there seems to be no positive evidence of any great weight in support of such a supposition. The modern method of treatment, namely, slaughter the moment the disease is suspected, materially narrows the field of observation, for except the first attack remain latent throughout

its course the possibility of recurrence is removed. Under these circumstances a small amount of positive evidence showing recurrence of the disease must be admitted to have greater weight than much negative evidence to the contrary. The reports of the Agricultural Department give many instances of the disease showing itself in a case which was thought to have been cured. M. Leblanc mentions an animal which had twice been inoculated, and at *post-mortem* examination presented an old encysted focus of disease in the right lung, and, in a distant part, a perfectly fresh and independent mass of consolidation. An experienced observer described to the recent Committee two similar cases, in one of which a recurrence occurred after eight months' interval of apparently perfect health, and in the other the animal reinfected herself after having been fifteen months under observation, and in perfect health, and died on the seventh day from the development of the second attack. On this point I can speak confidently from personal experience, as I have repeatedly met with old encapsuled masses of "cured" disease whose duration must be measured by years, together with perfectly independent recent exudation and pleural complications which brought the second attack under the notice of the veterinary surgeon.

From these facts I feel bound to conclude that while there is no adequate evidence that one attack confers immunity from a second, there is proof positive that the same animal can have a fresh pulmonary lesion after a considerable interval of perfect health, and may even affect her own lungs from an old cured focus of disease.

Next comes the question, Can inoculation "take well" in animals which have had the disease? And does it run the same course as in the clean animal? The reports of the Agricultural Department teem with evidence of inoculation of affected animals. The Belgian Commission reported that natural Pleuro-pneumonia and the lesions following inoculation may exist together in the same animal, and that having had the disease did not seem in the least to change the phenomena following inoculation. The great Scotch advocate for inoculation, in his evidence before the Departmental Committee, admits that those animals which have the pulmonary disease in a very limited area do accept inoculation. Another witness gives cases in which the inoculation ran an acute and typical course, yet the animal was found to have marked pulmonary lesions of old standing. Professor MacFadyean describes three cases in which after careful *post-mortem* examination the two lesions in an unmistakeable form were found coincident in the same animal. During my own relatively small experience I met with two cases inoculated by a most skilled operator, in which I found the two lesions co-existent. The tails of the animals which had been inoculated some weeks before were considered typical examples of the inoculation tumefaction, while the *post-mortem* examination showed that the pulmonary affection must have existed for a period long prior to the date of inoculation.

From these facts I am forced to conclude that having had the disease, or even having it acutely at the time, does not in the least prevent or modify the characteristic phenomena that follow inoculation.

The possibility of re-inoculation ought to be the simplest of the questions I have proposed to consider, yet I find it difficult to get exact and positive evidence on the subject. The Belgian Commission thought that the phenomena of inoculation may be produced several times in the same animal, and one frequently hears of second inoculations. But the advocates for the operation deny this re-inoculation, and say that the fact of a second inoculation "taking well" proves the first to have been unsuccessful. The Departmental Committee of last year do not seem to have considered this point worthy of searching investigation. However, I think it of the greatest possible importance in forming an opinion upon the prophylactic value of inoculation.

If inoculation prevent similar phenomena taking place again in any part of the animal it must be allowed that the general system has in some way been affected. On the other hand, if the inoculation do not protect the subject from re-inoculation it cannot be said to give immunity from the ordinary contagion of lung disease. I can find no evidence that convinces me that inoculated animals have complete immunity from re-inoculation. Probably the part inoculated may be unable a second time to undergo the characteristic lesion which follows the first operation. But is it true that after inoculation the exudation from freshly diseased lungs can be injected into any part of the areolar tissue or into the veins without producing any effect? Of course, a negative result of secondary inoculation may have been frequently obtained without proving positively that re-inoculation is impossible.

I know it to have been stated that it has been over and over again demonstrated, after successful caudal inoculation, that injections of the virus could be made with perfect impunity into the loose areolar tissue of any part. But I should like to ask those who are satisfied with these demonstrations whether they themselves would take the responsibility of the loss in case fresh virus were injected into the loose tissues of a herd of cattle a couple of months after successful caudal inoculation? Knowing the facts concerning the simultaneous co-existence of pulmonary and caudal disease, I personally should be slow in incurring any such risk.

In the absence of more conclusive evidence I cannot accept it as proved that an animal can only take inoculation once, and I think this a point well worthy of careful scientific investigation.

Now, with regard to the fourth point, which really is the main question. Does inoculation protect against the pulmonary disease? The evidence is of a very diverse and contradictory character. A very strong general feeling in favour of inoculation exists in the minds of the persons most interested in the subject. In Australia this is especially remarkable, as may be seen from the evidence given before the committee by the colonial witnesses.

The security supposed to be given by inoculation is shown to be doubtful by the number of cases that succumb to lung disease after that operation.

In the Reports of the Agricultural Department I find that cases of inoculated animals having taken the disease are frequently recorded. Indeed, when we remember that only those selected as the most healthy and resistent are chosen for inoculation, it seems to introduce no difference in the statistics.

In France some 39 per cent. of inoculated cases took the pulmonary disease. In Germany about 23 per cent., just the same percentage as in the Aylesbury dairy in 1873. In about thirty years of the practice of the most experienced inoculator in this country some 8 per cent. of inoculated beasts, carefully selected as sound, subsequently took the lung disease, although every possible precaution, such as immediate slaughter of the suspected cases, etc., was taken to keep down the sources of contagion. The question then arises, Would there be a much greater percentage of cases were these precautions alone depended upon, and the inoculation quite omitted? I think not.

In Belgium—the birthplace of inoculation—a commission in the year 1853 decided against its preventive efficacy. However, it may be urged that at that date the operation had not been perfected. At the fourth International Congress at Brussels, in 1883, it was decided that it should only be allowed with sanction of the Local Authority, and performed under the surveillance of the police. In 1885 Dr. Salmon reported to the American Government that inoculation did not lessen the losses and was unable to stamp out the disease, and he suggested that it should be prohibited by law.

The recent Departmental Committee, after hearing all the evidence on the subject, report against the efficacy of preventive inoculation, but they say,

"We cannot deny that inoculation in itself is valuable as a palliative and preventive method of treatment."

I presume the popular feeling in its favour must have led some of the committee to this conclusion, for I have failed to find in the evidence given before them anything that seems to afford adequate support for such a statement.

We must conclude from these facts that inoculation is far from acting as a perfect prophylactic to Pleuro-pneumonia. It might, however, have beneficial influence without conferring absolute immunity upon the inoculated beasts, by reducing the severity of the disease so as to render it less fatal. But this point is not the one most strongly urged by the advocates of inoculation, nor is there any striking evidence in support of such a theory. And even were its truth admitted, it would only help to prove the theoretical value of the operation, because practically, owing to the fact that the lightly affected animal must ever remain a focus of contamination, this kind of mitigation of the severity of the symptoms would be quite valueless, and inoculation would prove worse than useless in attempting to get rid of the disease.

From these general considerations I cannot, then, satisfy myself that caudal inoculation with the exudation taken from the diseased lung is advisable, either as a preventive or palliative mode of treatment.

But is there no scientific evidence which can remove these general doubts? In these days of microbic cultivation can we not find the *materia peccans?* Can we not learn how to curb its virulence?

To demonstrate scientifically the value of prophylactic inoculations the following evidence should, I think, be forthcoming:

(1) The disease must be proved to depend upon one specific organism, for some such reasons as these:

a. Invariable presence of the organism in the tissues.

b. Possibility of absolute isolation of organism, and repeated pure cultivation.

c. Renewed production of the disease by cultivated organism.

(2) The virulence of the virus must be shown to be capable of mitigation by means of:

α. Prolonged pure cultivations.

β. Change of soil (different animals).

γ. Excess of temperature.

δ. Variation in O. supply.

ε. Action of antiseptics.

If we seek this evidence in Pleuro-pneumonia we find certainly that there is no lack of bacteria in the diseased parts of the lung. This one would expect from the fact that the part has free access to the open air. Some of these bacteria are found to be present with remarkable constancy, but their perfect isolation and pure cultivation seem to offer considerable difficulty. I understand M. Pasteur devoted some time to the separation of the specific microbe, but he abandoned the research. Since then, however, many observers have isolated and cultivated organisms which they consider to be the specific cause of the disease, and a remarkable similarity exists between some of the forms of bacteria described by different experimenters.

An important link in the chain of evidence seems to be wanting when the production of the pulmonary disease is attempted. I am not aware that any experimenter has yet satisfied anyone but himself that he could produce the pulmonary lesion from a cultivation. Indeed, cultivation seems rapidly to rob the supposed virus of its virulence, and by the time a really pure cultivation of any of the suspected organisms is obtained it seems to have lost its power of setting up even the peculiar local changes in the connective tissue which accompany successful inoculation.

M. Arloing, of Lyons, recently communicated verbally to me the substance of his paper at the Veterinary Congress in Paris, detailing his method of isolating the bacterium and his mode of mitigating the virulence of the virus by intravenous injections of the cultivations, which set up changes in the lymphatic glands of the animal. From these glands he could obtain the same organism; and inoculation with material from these glands produced a much less violent lesion. Thus, no doubt, the bad effects of inoculation may be lessened or removed, but as far as I could gather from our conversation the probability of the prevention of Pleuro-pneumonia remained as far distant as ever.

I shall not touch upon the good reasons set forth in the report of the Departmental Committee for the refusal to admit the advisability of experimental research with a view of testing the relative efficacy of inoculation and of slaughter as modes of stamping out the disease. But I think the question of inoculative prophylaxis urgently demands careful scientific investigation, in order to determine whether the operation be not more than useless.

If it cannot be applied so as to be perfectly prophylactic by conferring complete immunity upon the inoculated beasts, it must be worse than useless, for any palliative effect could only tend to prevent the recognition of a disease already too obscure, and thus to perpetuate instead of eradicating the plague.

In my opinion except it be definitely proved that inoculation of one part gives immunity from further inoculation of any other part of the animal, the operation should be condemned and prohibited except under the sanction and control of skilled inspectors, and under all possible restrictions, and removal prohibited.

If the local phenomena caused by inoculation cannot be warded off or rendered impossible by a previous operation, I cannot conceive any logical grounds upon which its prophylactic efficacy can be based. The poor beasts should be spared the pain and inconvenience of losing the useful tip of their tails and the owners saved the needless expenditure and anxiety of such futile procedures.

The CHAIRMAN: Gentlemen, it is now my pleasing duty, as Chairman, to propose a vote of thanks to Dr. Yeo for his most interesting lecture. I am sure one and all will heartily agree with me in supporting that vote of thanks. To me his lecture has been most interesting. It would be unbecoming and ridiculous of me to put forward any expressions of my own, as an unscientific person, with regard to Pleuro-pneumonia and inoculation, but one may have one's private opinions, and I have held the belief for many years past that inoculation was ineffective. I do wish it could be for once and all established whether inoculation is of any use or not. I am sure as long as some people have got it in their minds that inoculation is effective we shall never get rid of disease, which I am afraid is rather spreading than otherwise in this country. As a breeder of cattle, and knowing the feeling of breeders of cattle over a good part of the United Kingdom, I do know it is engaging the attention of all of them very seriously at this moment; and I would ask you scientific gentlemen to put your shoulder to the wheel, and at all events let us unscientific people know what is the best thing to be done. My belief is as regards cattle, slaughter or extreme isolation. I have not come here, however, to give my opinions or to discuss Professor Yeo's lecture, with which I cordially agree. I was very glad to hear the few introductory words before Dr. Yeo came to his subject; that is, as regards the status of you gentlemen and the veterinary profession universally. I did feel great delight in thinking that during the few years I have been one of the Governors of this Institution the status of the gentle-

men studying here, and the status of the veterinary profession altogether, is far better understood by the community at large in this kingdom. I am afraid I can look back to the time when the veterinary profession was not thought very much of, at all events in this country. Now, I can assure you, such is very far from being the case, and agriculturists do look on veterinary professors not only to rear and cure their cattle, but in many other ways as regards their cattle, horses, sheep, and pigs. People now do wish to study the subject, and be taught by others how to prevent disease attacking their flocks and herds. I cannot help thinking, and you will all go with me in this, that the veterinary profession has made great strides during the last few years, and you gentlemen who have come here to study, having passed out of the College, become members of the profession *pari passu* with those who have to doctor human beings. I feel that this is now far better understood by the community at large, and I congratulate you and this College upon it. I will only make these few remarks, and I now propose a vote of thanks to Dr. Yeo for coming here to-day and giving us such an interesting lecture.

Professor YEO.—Thank you very much for your kind reception.

Professor AXE.—I have to make an announcement for which I have no doubt some are looking forward with a good deal of anxiety. I have to inform students, who have recently passed the examinations, of the result of those examinations and the prizes awarded.

COLEMAN PRIZES.

Silver Medal	Mr. W. A. Byrne.
Bronze Medal	Mr. J. Beanland.
Certificate of Merit	Mr. A. Le Sueur.

SCHOLARSHIP.

£25 per Annum for Two Years	Mr. J. W. Reynolds.

CLASS PRIZES.

CLASS C.

Contagious and Parasitic Diseases	Mr. E. E. Martin.
Veterinary Medicine and Surgery	Mr. J. Beanland.
Morbid Anatomy and Pathology	Mr. T. Ludlow.
*Therapeutics**	Mr. J. Beanland.

CLASS B.

Anatomy	Mr. J. Row.
Histology	Mr. F. M. Hill.
Physiology	Mr. T. C. Garry.

CLASS A.

Chemistry and Toxicology	Mr. G. H. Williams. Mr. J. H. Taylor.
Practical Chemistry	Mr. J. Toms. Mr. F. W. Wilson.
Botany	Mr. G. C. Lowe.
Elementary Anatomy	Mr. J. H. Taylor.

The prizes which have been awarded may be received by the gentlemen to whom they are awarded on applying after the meeting.

* For the Therapeutics Prize of last year, 1888, Mr. Bush and Mr. R. W. Knowles of Wisbech were bracketed equal, but by mistake the latter gentleman's name was omitted.

Professor BROWN (Principal) said: Gentlemen, a word by way of concluding these proceedings, which we always endeavour to keep within reasonable limits, being ourselves firmly convinced that one is not permitted to waste time, because it is the stuff that life is made of; and we are further also believers in the maxim that "brevity is the soul of wit," and certainly you will agree with me in that respect, Dr. Yeo's address was a model of witticism. He was good enough to give us a very great deal in a very small compass, and we must look forward to the opportunity of digesting some of his sentences when they appear in the public press. My present duty is to ask you to do what you will with great readiness perform, give a vote of thanks to Colonel Sir Nigel Kingscote for his kindness in taking the chair to-day. Colonel Kingscote is no stranger here. As you are aware, for many years he has been one of the Governors of the College; but to my mind his qualification in that respect shrinks into comparative insignificance in face of the fact that he comes here as a representative agriculturist. I do not intend to take up your time by dilating on this or any other topic now, but I hear constantly that our ranks are being overcrowded, and some of your friends, your fathers and brothers in the profession, do not hesitate to say in their discussions at the medical societies that the examinations must be made more severe with the result of keeping many candidates out of the profession. Whether that method, which comes from yourselves recollect and not from us, is the right one or not, I do not pretend to say; but you may depend upon it that if you will take the trouble to do what you never, as a profession, have yet done, try to get the confidence of the agricultural community, you may double your numbers and increase your gains in proportion. But so long as you will insist on concentrating yourselves upon your equine patients, and sternly maintaining that distinguished title with which you began, viz., that of horse doctors, you will overcrowd your profession without the smallest difficulty. But, with between forty and fifty millions of stock in the United Kingdom alone, it is idle to talk about your very small ranks furnishing a specimen of overcrowding. On this account, gentlemen, we specially welcome Colonel Kingscote here to-day, because he knows perfectly well that what I am now telling you is literal truth, and that the great aim you should have before you is to associate yourselves as much as possible with the owners of this stock, whose diseases have not yet received one hundredth part of the attention which they undoubtedly merit and will some time or other have to receive. I ask you to give a cordial vote of thanks to Colonel Sir Nigel Kingscote for his kindness in taking the chair here to-day.

The CHAIRMAN.—I am extremely obliged to the professor for the kind way in which he has proposed this vote of thanks, and to you, gentlemen, for the way in which you have received it. It has been a very great pleasure to me to come here a second time, for I had the honour of taking the chair here at a similar gathering on a previous occasion. I assure you, as a Governor of the College, I take a very great interest in it, and I try to interest other Governors to do all we can to make it as efficient as possible. We have got no long pockets at our backs like other societies of this sort, and I am afraid if we even went to the new Minister of Agriculture he would turn round upon us and say he was unable to help us. I hope, however, we may get help in other ways. I would also ask you to take to heart the few words which Professor Brown said to you and to the profession generally, and endeavour to get that knowledge of cattle and sheep which I believe you have pre-eminently obtained as regards horses. I will not speak of the humbler animals perhaps, but agricultural animals are, on the whole, the most valuable stock in the country. I thank you very much for the reception you have given me.

Professor BROWN.—I would remind you that we shall go on to-morrow in full work. There is no more time to play.

The proceedings then terminated.

GLASGOW VETERINARY COLLEGE.

THE winter session of the Glasgow Veterinary College was opened on 1st October, by an introductory lecture delivered by Professor Limont, M.A., M.B., in presence of a large number of students and others interested.

Principal McCall occupied the chair.

Among those present were Professor McKendrick, Glasgow University; Principal Williams, Edinburgh Veterinary College; Dr. Morrison, Free Church College; Mr. Campbell, V.S., Kirkcudbright; Professor S. Charteris, Glasgow University; Rev. Mr. Scott, Bargeddie; Dr. Willis, Baillieston; Dr. Carmichael, Glasgow; Dr. Russell, Glasgow; and Professors Cooke and Ferguson, Glasgow Veterinary College, etc., etc.

Professor LIMONT said—

GENTLEMEN STUDENTS,—It falls to me to bid you welcome, and play the leading part in the academic function known as the Introductory. Every school has its victim, and about the 1st of October his voice is heard in the land. The tones vary, but the burden of his song merely oscillates. He has a special subject in which few take special interest—or he has no subject, but devotes himself to the interesting objects on the benches, and especially to those on the back benches. To new comers the city may not at first suggest academic groves. But I assure you that this is a city of colleges and professors—especially professors—and that plain living is remarkably cheap. I am afraid, however, that it is also held cheap! and that hard thinking is not so common as it ought to be. You will be charmed to hear that we have got our own Girton, where they do not always study the

> "Quadrant—and the anemometer;
> and oh, that darling, darling dumpy-level."

And on the banks of the ancient Molendinar a college is said to have reared its head, in spite of the sad truth that some colleges do not rear many students. So far they have not appointed a rival set of veterinary professors. But I have had thoughts of dropping the title of professor in fear of being included in dreadful statistics, such as those of the percentage of public-houses in the population. On second thoughts I have resolved not to. We still get good classes here.

You are no doubt proud to be veterinary students. But you are not the men of the old days. This is pretty certain. Some of the fathers, however, consider you to be a very poor lot. But I think their judgments are too sweeping, as they are not based on their mellowed remembrance of the students of old (including, of course, themselves) compared with a naturally more limited knowledge of the students of to-day? But there is truth in what they say, and I shall touch again upon this point. As compliments are always safe, and may be genuine, I shall say this—that after work in six medical schools in Scotland and London, and after long work with you here, I know you to be at least the equals of medical students of the better class. In this college you must submit to discipline in the matters of study and examination. I used to harbour an old Edinburgh prejudice against this. In Edinburgh rival teachers lecture on each subject, and a student goes to the man he fancies. This fancy is pretty much all there is to keep him at work, and yet the system works well. But it is possible only where there are many men with plenty of money. There are only two such medical

schools, Edinburgh and Cambridge. And evidently veterinary schools of this kind are out of the question. Our college is more like an individual college in Oxford or Cambridge, and in it discipline is both possible and desirable. I have a word for the men who come to us after a term of pupilage. They have got some good and some harm from it. Everything depends upon their courage and determination during the first weeks of term. They must get to work, and try hard to recover certain powers and habits of study lost in the gap between school and college. They must try to get hold of the scientific spirit. They must read harder than other men, for they have lost the school-boy power of cram—and even the best of men have something to cram. If they set steadily to work they will reap in due time the benefit of their experience. If they don't they will not come to much good. Beginners have but three years of study before them—at least they hope so. This is said to be, and may be, too short a time. But it is long enough to reach the standard of the examining board. The worst of it is that men have not time to get outside the beaten track. Good men do not get enough freedom of study. I may add that sometimes worthless men do not get time to come out in their true colours. They get into the profession and can't get out of it. The curriculum might well be lengthened. No doubt professions should be open to all in a certain sense; but only the fit must be allowed to enter. It is idle to try to raise a profession by raising the examinations alone. It is difficult to get examinations both good and stiff, and then the public won't stand it. The time test and the money test are not to be despised. Good candidates have almost always a turn or a love for their future profession, and they naturally fall into two classes. In the first are men of brains, birth, and money; in the second men of brains, no birth, and very little money. The former make good students if they use their money without abusing it, the latter do quite as well when they pass through the ordeal of earning the money they need for a proper course of study. I suspect that it is the memory of men of this class that so prejudices some of the elders against our students. A typical poor candidate is a commonplace lad, designed by his father for a profession, and sent to the veterinary because it is the cheapest. Sometimes such a lad honours his father's frugality and self-denial, works hard and does well. But he and his compeers are in no sense a picked set of men, and are weighed down by many disadvantages. In any profession the worst candidates are perhaps the men that have no money, don't earn any, and yet get through the portals—to the lasting injury of the profession. Of course I do not include in this class men who win money in real and open competition. But some professions are much injured by endowments. Some time ago a clergyman in England told me that the Scotch medical men in his country were a contemptible crew. I did not deny it, but I told him that the younger ministers of his Church were a very poor set compared with the men of five-and-twenty-years ago; and I told him why—that they had cut down the curriculum, and issued showers of sham competition scholarships. He did not directly deny it, and after some talk remarked—by the way he is a well-known radical—"*After all it seems that the money test is the best?*"

You will have some trouble with books; text-books are good, bad, and indifferent. The good are scarce, and the indifferent are worse than the bad. It is probably useless to protest against the unknown language in which most of them are written. But we should boycott one variety. These books are very big, and seem to have been flung together by all the winds of heaven. The authors must have ceased to ruminate, owing to severe indigestion. To heap together masses of crude, doubtful and incompatible material is perhaps all that the authors can do—*Necessitas non habet leges.* But I do not see the necessity, and I protest on behalf of Her Majesty's

lieges. Students are not carnivorous, often not even omnivorous, and they can't swallow such tremendous boluses. Reviewers can't be compelled to read books, but I wish we could make them bolt one or two that I know, and that not as young ladies devour novels. I doubt, however, that they could not be got down either way.

You will soon hear the voice of the "practical man" and become accustomed to his perennial objections to "theory." Be practical by all means; get a mind-picture of things by using your senses upon the things themselves. Don't depend upon a second-hand picture got with the ears alone, or with the eyes from a bad wood-cut. But be theoretical; it is purely by a matter of theory that any two sides of a given triangle taken together are greater than the third side. If a practical man comes to you with a measuring-rod, and says that this is not true of a certain triangle, tell him quietly, but firmly, that you prefer to trust to theory.

Nobody is so theoretical as the practical man; and often his theories are not less absurd than, say, a theory that a moustache, like the "evil eye" of the devout north, has a malign influence on the behaviour of harness-horses. Such a theory might be of some service in the selection of a new set of post-boys or 'bus-drivers. But it would hardly serve in the separation of the good from the bad whips in a cavalry regiment. If, acting on his own theory, the practical man ever gets good results, he is sure of its absolute infallibility. The fame of many a Court physician rests on little more than a few trumpery theories that he pushed until they got the books. There they are apt to stay for a long time, just because people get used to the sight of them. We cannot do without theory. Ten years ago Sir Joseph Lister, once well known in this college, had just triumphed. Aseptic surgery had, in his hands, done away with almost every danger of operative surgery. I worked for a few years under him, and under the best of his disciples, at a time when his old opponents were changing sides in shoals. His own students, when they devoted themselves to surgery, almost to a man resembled their master—they were fuller of the theory than the practice of every detail of a complicated system; and so were some outsiders. But many cared for nothing but the practice, or nothing but the practice and the theory of the action of bacteria. The theoretical men generally succeeded, but I cannot remember one practical man that did not fail, and as a rule they miserably failed. And yet I am told to-day that Sir Joseph Lister's teaching (of that time) as to inflammation, the healing of wounds, and other matters, involved theories that must soon be abandoned. But the theories he held were good ones, and have done splendid service in their day and generation. And so did the old corpuscular theory of light, though it is now abandoned. You can hardly be too much men of science, but let me give you one or two warnings. Do not be too much puffed up if you happen to pass a brilliant examination. I do not say that a man is not a physiologist because he has only heard or read of the observations and experiments of others, because he has only followed the reasonings of other men. But remember that you do this only in a very limited and imperfect way, and that very often you do not do it at all, but merely accept the conclusions of others. This knowledge of results is very useful no doubt. But it is hardly science. Faithful students of the sciences that deal with *things* are less likely than others to fall into the meaningless "cant," so common amongst educated men when they come to deal with matters outside their own province. But don't begin to mouth and vapour about the "tendency of modern scientific thought" whenever you get badly cornered. Try to be always sure of your own ignorance. Some men are cocksure of what they know; others are surer of what they don't know. The latter frame of mind is the better, and does not prevent you from being very confident about the ignorance of other people. If there is room at St. Mungo's

for yet another, I should suggest the appointment of a Professor of Ignorance. He might read the prayers of the college—

"O wad some power the giftie gie us
To see oorsels as ithers see us."

This is in more senses than one hardly Scotch. I never knew a Scotchman wish for such a power, and I don't think many of them would take it as a gift, though, like others, some of them want it. Again, science will not take the place of other knowledge. Let us admit that physiology teaches that a horse in hard work is best fed a certain number of times a day. It would be very foolish to insist upon this practice in every case. Clients must think of convenience and of men's wages. But your scientific knowledge will enable you to recognise, quicker than the owners, that a particular stud should get, let us say, one more meal. Beginners are apt to bring thoughtless discredit on science, not because they are ignorant of it, and not because science is at fault, but because they lack every-day worldly knowledge. One point more. Do not undervalue the *dicta* of unscientific, but able and experienced men. They have been making rough observations and experiments all their lives, and reasoning upon them after their own fashion. This is really a rough kind of science, and often there is no better available. In practice it must be added to more pretentious science. No man will ever learn to stitch wounds properly unless he make a great many experiments with a needle and wire. But he had better lessen the need for these experiments by first studying pathology. In one matter veterinary students are fortunate. They get at once to "the bones," and for the first time learn to see. In another they are very unfortunate. During the first year one-third of your time should be devoted to anatomy, and two-thirds to physical science. This is the grandmother science of all the sciences that deal with dead or living things. And were our sciences perfect they would be wholly exact, and but branches of physical science. To teach men modern physiology and pathology while they know little or nothing of physical science, is to make bricks without straw. It is such a pity that veterinary students cannot make a scientific study of the horse as an exquisite engine built up of a number of machines. It is pitiable to read chapters on draught, harness, the conformation of the horse, animal mechanics, and so on. It may seem incredible, but it is true that there are pages in notable books dotted all over with such words as force, energy, weight, impulse, every one of them wrongly used. The result is, of course, that people have the most absurd ideas on these subjects. And the language in which some of these ideas are expressed can only, I think, be surpassed in absurdity by the average reporter's account of a railway collision. Some day this will be put right. But I hope we shall never have the medical plan of a preliminary examination in so-called "mechanics." I thoroughly agree with Dr. McKendrick that this is worse than useless.

I am not going to indulge in the favourite pastime of abusing the examining board. It isn't quite perfect, and I don't think that it ever will be. If I don't grumble, you need not. On the whole you are safe to get credit for faithful and fairly hard work. Sometimes a man gets rather hard lines, but, on the other hand, sometimes another gets too much credit. This is inevitable at all examinations. Safety lies only in steady good work. Every man that entered the senior Anatomy and Physiology classes last October passed last May, simply because work was the rule. I have many a time given the key and the combination; but I have not always got students to follow the instructions. When they don't, only one result can follow. The range of the examinations in my subjects is quite fair, and I for one do not want it cut down. If men are fit to be taught up to a certain point, it is terribly tough work to teach them to a point much below it. They despise

the examination (and the examiners), and take no interest in the subject. They trust to "orals" and a wretched little "grind book." Then they get plucked, and people who do not know much about these matters think that the examination must be searching and severe. I am more anxious to have good than easy examinations.

One part of your duty to the public will be to give evidence in their behalf. This will need more brains, knowledge, and wisdom than the duties of practice. Experts ordinary and extraordinary are now-a-days sorely abused. They are denounced as advocates; and because they differ doubt is thrown upon the reality of their science and art. But engineers suffer this reproach quite as often as other experts, and yet the Forth Bridge and the Eiffel Tower are realities—in spite of the old Tay Bridge and the Tower of Babel. This imputation of discreditable advocacy is hardly fair. It is a pity, no doubt, that experts are so like advocates—but are they to blame for it? Why, they can hardly be anything else. Let us suppose that the solicitors on both sides have decided upon the experts to be called. Are any chosen but men ready with a strong case that hangs well together? any with doubts? any willing to admit something that tells against their opinions? If the choice lay between two men, has it fallen upon the more just and reasonable and learned, or upon the unscrupulous, plausible, and dogmatic? Experts are men, and differ like members of the House? Now, what kind of agreement can there be between ten of the New Radicals and ten Tories of the old school? We don't, as a rule, scoff at the doctrines and refuse the teaching of the Christian Church because Cardinal Manning and Mr. Spurgeon do not exactly agree. Suppose that an expert is not dispensed with at the last moment, because dangerous to "his own side." Let him get into the box. Does he get a chance to tell the truth, the whole truth, and nothing but the truth? He is allowed to tell his own story, and he won't be allowed to tell the "whole truth" if counsel can stop him. Nor will he get much help from judge and jury. If cool, ready, and determined, he may manage to edge in or blurt out something the court ought to know. But the result is, he gets hostile treatment from both sides; that two sets of skilled counsel—armed with almost unlimited power of insult—do their best to make him smart for something he has said. And in future he is not likely to be in great request as a witness. Nor is it to be forgotten that many experts are born advocates, and that in a keenly fought case they are alternately tempted and goaded into showing it. Some change must be made, if there is to be fair play for prisoners and litigants—not to speak of experts.

As a matter of fact, however, science and art are cruelly misrepresented by so-called experts. Let me quote the first part of article 49 in Sir James Stephens' "Digest of Law of Evidence."

He says: "When there is a question as to any point of science or art, the opinions upon that point of persons specially skilled in any such matter are deemed to be relevant facts. Such persons are hereinafter called experts. Taking Art. 48 along with what I have quoted, we find that the opinions upon these questions of *experts only* are to be deemed relevant facts, or as we commonly say, 'taken as evidence.' Now let me quote the remainder of Art. 49. The words 'science and art' include all subjects on which a course of special study or experience is necessary to the formation of an opinion. It is the study of the judge to decide, subject to the opinion of the court above, whether the skill of any person in the matter on which evidence of his opinion is offered is sufficient to entitle him to be considered as an expert." Now I ask how many of the witnesses in recent notorious trials had any right to be considered experts upon the points in question, or upon any subjects whatever? This grievance is made worse by the fact, that the public don't know how much it is in the power of a witness to have a long parade of his

knowledge or ignorance, both in court and in the newspapers next morning.

Another subject of interest to you is that of public health. The art of protecting the public health is coming to rest more and more upon a real pathology common to the sister professions, and day by day medical men and veterinary surgeons are being pressed into the service, directly or indirectly. Let me plead for wisdom—I will not say common-sense—in this matter. I object strongly to premature advances and ill-judged "rushes." Practical measures are not to be decided by pathology alone. Put yourself in the position of the public, and consider what they (very rightly) consider. The vast majority of the Glasgow folk get but a fraction of the air-space they ought to have. But does any one in his senses propose to have this put right at twelve months' notice? Why, an idiot ordaining this would cause a revolution; the change must come step by step, and in line with other reforms. Decency is worth more than a drop of two per thousand in the death-rate. Let us get rid of one-room houses, and for the time, be not too particular about cubic contents. We do not live to breathe. In practical work for the prevention of disease, whether in home or homestead, we must be men of the world, as well as pathologists. It is not strange that bacillus panics should sway the public to unreasonable demands, but scientific men should surely keep their heads. They don't always do so, however, and sometimes they seem to perform the remarkable feat of losing them on purpose. Now it is slums, now milk, now meat. Extravagant demands are made, and sometimes, but not often, yielded to. Then the excitement suddenly dies away, and is forgotten in a week or two. A few weeks ago we had a practical commentary upon what I have been saying. We got a cow from a dairy. Her udder seemed perfectly healthy, and her milk was all right to look at. But this milk swarmed with tubercle bacilli; and when she died we found tubercles in almost every part, though not in the udder. For months tubercular beef has kept the whole community in a ferment, money and ink have flown like water, and the public are now, it is said, being very much protected against it. I hope they are not protected upon the principle that the flesh of all not perfectly healthy animals is dangerous, or upon the principle that the very slightest danger is enough to warrant condemnation. The profession had better beware of such principles. I once heard a brilliant physician uphold the action of the Society for the Prevention of Cruelty to Animals, on the ground that no lame horses should be allowed on the streets, whether it hurt them or not, *because it wasn't pleasant to him to see a lame horse!* But during the past six months, we have heard little about the infinitely more dangerous milk, and, unless I am mistaken, the means of protecting you from a few thousand bacilli in a glass of it, are not by any means so potent and direct as the measures levelled against a stray bacillus in your beef-steak. However, some day scarlet fever will break out in a fashionable quarter. Somebody will discover a new disease in the sore teats of a cow, and milk will become fashionable once more.

And now, gentlemen, I must end this rambling discourse upon threadbare topics. It is the custom on such occasions to give you some good advice. I am not going to preach to you, for I have little sympathy with the spirit of the cry, "Here's a young man—let us out and preach at him." But I may say a little; your chief end and object must be your work; let your relaxations be such that they bring you to it brighter and fitter. A good novel, a good poem, play or sermon, will at proper times do you all the good in the world. Read, sometimes, real and realistic history, not the trash that wearied you at school. A night with Clive in India, or with Cromwell against the King, will bring you all the fresher to your work in the morning.

I would not have you on the grindstone every night of the week. Most of you cannot hope to see much of men and manners, good men and good manners, outside. Make the most, then, of your fellow-students, and get at least some of the advantages of travel. Every country and every county has its strong and its weak points. The calm and just pride of Englishmen in the splendid history of their people is often tinged by too great a sense of personal merit in not having been born a Russian or a Turk. Scotchmen, because at present on the whole at least equal to Englishmen, are apt to think that they are ahead in everything, that they always were, and that they always will be. Irishmen—well, English and Scotch used to agree that the doctrine of Original Sin applied, and with peculiar force, to the Irish. But to know them, as I have learnt to know them here and elsewhere, is to know better. Try to recognise and imitate the good points of your neighbours. Find out the weaknesses that you share with your countrymen, and avoid them. You will improve—and York, Canterbury, and Cornwall, Scotland, Wales, and (more or less) United Ireland will still preserve their characteristics. I am afraid you must go without the gentler companionship. A student must dally over his work never, and with young ladies only in summer, when these lapses do not so much matter. You can comfort yourselves on Sundays by hearing that this is one of the cities of the plain.

I do not ask you to forswear "cakes and ale." In the first place, I know that you won't. In the second, I do not want you to do anything of the kind. But enjoy them soberly and in reason. Nor am I going to specially enjoin upon you the practice of the more smug virtues. For this is no place to denounce the more smug vices. Be good men and good gentlemen. Let your life in the free student-land of Bohemia be simpler, braver, and purer than the lives lived in Philistia. Grow into gentlemen as you grow into men—gentlemen, the same before high and low, rich and poor—men, afraid of nothing but conscience and your God.

NEW VETERINARY COLLEGE.

THE winter session of this College was opened on the 2nd October with an address by the Principal, Professor Williams, the chair being occupied by Charles Phillips, Esq., A.V.D.

The following veterinary surgeons, amongst others, were present: Messrs Lawson, Falkirk; Young, Cockermouth; Elphick, Newcastle; Hickes Market-Weighton; Kay, Lochee; Baillie, Cupar, Fife; Anderson, Forfar; Brownlee, Coatbridge; Johnston, Peebles; Morris, Orkney; Eltoft, Lancaster; Duvall, Edinburgh; Borthwick, Kirkliston; Storrie, East Linton; Reid, Leith; Aitken, Edinburgh; Young, East Calder; Rutherford, Edinburgh; Finlay Dun, Edinburgh; Connochie, Selkirk; Campbell, Kirkcudbright; Middlehurst, Liverpool; Ashton, Bolton; Love, Leith; Cockburn, Nottingham; Dalling, Edinburgh; Bannatyne, Haddington.

There were also present Professors Hunter, Lewis, W. O. Williams, McAlpine, Macadam, McCall; Messrs. Veitch, James Park, James Hope, Wilson, Skirving, Johnston, S. F. Petrie, R. S. Gray, Captain Stewart, and Dr. Hughes; Mrs. Rutherford, Mrs. W. O. Williams, Misses Gray, and other ladies. The following, together with many others, were unable to attend the opening, owing to pressure of business, etc.: The Professors of the London Veterinary College; Professors Pritchard, Cox, and Simonds; Messrs. Greaves, Manchester; Robinson, Greenock; Peter Taylor, S. Locke J. W. Ingram, Manchester; Sir Henry Simpson, the Lord Justice Clerk, and Dr. Dreschfeld.

Professor WILLIAMS briefly introduced the Chairman.

The CHAIRMAN, who was received with loud applause, said Principal

Williams, ladies and gentlemen, I must thank you for the introduction and for the very kind reception which you have accorded me. Any little service that I may be able to render to the learned Principal of this College to-day is, in my mind, far out-balanced by the honour which he has conferred on me by his kind invitation. It is with great pleasure and with feelings of duty, though not without hesitation, that I take the chair—pleasure in being in any way able to support my learned friend, feelings of duty as a member of the profession in being able in any small way to assist him in the good work which he is performing, but, ladies and gentlemen, with some hesitation when I think of the very long list of friends which he had at his command when he selected me from the list, and also remembering my distinguished predecessors, also members of the profession, also those not of the profession, who have so ably carried out the duties of the chair. We have all met here to-day within the walls of this College to be present at the opening of its winter session—of, I believe, the seventeenth winter session—to show by our presence the interest which we take in the success of this particular school, in the advancement of veterinary science, and from that advancement in the benefits which must be conferred on the general public, and also in the alleviation of the sufferings of the lower animals. Now, the chief interest on these occasions is directed to the reading of the introductory address, and on this particular occasion I think that, without disparaging the efforts of other gentlemen who may have read addresses on previous occasions, we may say we are extremely fortunate to-day in being about to listen to an introductory address which is to be read by the founder and principal of this College.

Ladies and gentlemen, without further delay, I feel I am anticipating your wishes when I perform the pleasant duty of calling upon Professor Williams to read the introductory address.

Principal WILLIAMS, who was received with loud applause, gave them all a hearty welcome to Edinburgh and that College. He was not going to make a long address to the students that day. He had made many addresses to students, but notice had not always been taken of them. His experience, however, enabled him to know and to predict that the great majority had come there for the purpose of doing honest work, some few of them to do a little work, and a very, very few—exceptionally few—to do no work at all. The poor man, as a rule, was an honest worker, but the rich man, if he had sufficient means, might do as he pleased afterwards. He urged them all to devote themselves to their work, and study and endeavour to obtain the diploma of the profession into which they had entered. There were other matters of greater interest to the public than addresses to students, and he therefore concluded his observations to them by trusting that the minority would follow the example of the majority. Within the last few months there had been departures in veterinary pathology—particular and peculiar departures. Articles had appeared recently in the newspapers —one of them being rather an expression of *opinion* than an article—which looked upon certain pathological processes as those of evolution. He was sure his friends in the profession would be surprised to hear, perhaps for the first time, that the Navicular Disease was looked upon now by some young and rather verdant veterinary surgeons as a process of evolution by which they expect that the navicular bone is to be removed altogether as non-essential and unnecessary, and they traced the process of the disease as that by which nature was now removing the bone as an unnecessary appendage. One remarkable thing that upset that theory was that such a disease was not now so common, owing to better shoeing, etc. If it were a process of evolution set up by nature, surely, by a very simple process of reasoning, the disease would be much more common now, and he thought

that theory fell to the ground. Another thing was the condition termed "Splints," which was also looked upon as a process of evolution whereby the three bones would be ultimately united. It was thought to be an indication that nature would, by-and-by, weld these bones until there was only one bone in the leg of the horse. He could not accept that. If nature intended the horse to have one bone in the leg instead of three, surely, every now and then they should find a foal born with the bones united, instead of having the painful process which they often witnessed in the formation of Splints. This theory was something like Wagner's music—the music of the future—which no one of his calibre could comprehend. A few years ago there was a good deal of expression of opinion about certain things which he hoped would turn out correct. It was publicly intimated that the operation for Roaring had proved a great success. It was a most peculiar thing that the horse was subject to this condition termed Roaring. Man was not subject to it—though some people were always roaring. In order to remove this noise, it was suggested to cut into the larynx and remove the cartilage on the left side, which had lost its function, and also to remove the vocal cord. The result was, however, not satisfactory. They were at one time told to believe it was a cure, and he had himself performed the operation on one horse which became a useful animal, but still he made a noise. In another case he operated on a hunter. He prayed for success in this case, as the horse was a very good and a most costly animal; but when the horse left him he was even worse than before. He was, therefore, sorry to say that he was not in a position to tell them that the operation had been a success.

He might refer to another matter, as it dealt with the windpipe, and that was the method of curing the disease termed "Hoose," or Husk. He might tell farmers that it could be performed by anybody having a moderate amount of skill. By a simple injection the disease could be cured, and he wished the public would take notice of this. He would be happy to show the whole process to any veterinary surgeon. He also had a few words to say about Tuberculosis, and expressed an opinion that there were various conditions which were mistaken for Tuberculosis. He agreed generally with the French Commission, that when they had Tuberculosis the evidence, so far, was in favour of prohibition, and that there was danger to human life even from partaking of the beef of an animal that had suffered from Tuberculosis. He would say, without going further, that the question deserved more consideration, and that this country should be roused from its apathy to follow other countries in instituting investigations into these questions which involved the national wealth and well-being of the people. He thought the *Scotsman* might perhaps have some influence with the Government if it took the matter up; but the *Scotsman* never took any notice of his remarks. The *Scotsman* said he had a "private institution." He once represented a public institution; but all their colleges were alike. They were all on an equality. The London College was governed by governors elected out of subscribers, and the Dick College was governed by the Town Council—or rather by a gentleman in the Town Council who drove the worst pair of horses in this city. If the *Scotsman* treated all private and extramural teachers alike, and did not report the lectures of one while ignoring the others, they would not grumble. But he had been boycotted by the *Scotsman*.

He would next touch upon the major subject of his address, and this was the question of Pleuro-pneumonia. Several letters had appeared in the *Scotsman*—some good and some bad—and various suggestions were thrown out as to how we ought to deal with Pleuro-pneumonia. It was an admitted fact that since the slaughter order had been put into force the disease,

instead of diminishing, had increased, and cost the country an enormous sum of money. Suggestions had been offered by farmers and others as to the treatment. Some said they gave nitre, others tartar emetic, etc., etc., "and they got better"! Did the public think that veterinary surgeons had not tried all these? For twenty-five years he had treated thousands of cases of Pleuro-pneumonia, and tried all the remedies of the Pharmacopœia. They did not all die—at least from 40 to 50 per cent. recovered. It was not so very fatal as to destroy all, but they tried everything, and when animals so cured were introduced into a herd others took it. The apparently recovered animals had the products of the disease in their lungs; the disease continued in the herd, and could not be got rid of. They had tried all kinds of treatment, and were not to be taught by amateurs how they should deal with the disease. Then they had investigations into the nature of Pleuro-pneumonia by two amateurs. One of these had promulgated the theory that it was a species of Bronchitis. Dr. Woodhead also described it as Bronchitis. The two diseases, however, were entirely different, and Pleuro-pneumonia had no connection with Bronchitis. They had another proposal from another amateur: it was that Inchcolm should be converted into a sanatorium for the purpose of dealing with Pleuro-pneumonia. If this professor of surgery knew anything about Pleuro-pneumonia, he thought Inchcolm would have been the last place to select. Would some gentleman recommend Inchcolm for chest diseases in the human being? It seemed an absurdity that any local authority should countenance a proposal of this kind. Why choose an island? The spread of Pleuro-pneumonia was very limited; they did not want an island. Further, the vaccine of Pleuro-pneumonia had been isolated years ago. It was discovered in 1851. The lymph which was obtained from the lungs might be modified, and he made a proposal to the Highland Society three years ago in regard to it. Local authorities were willing to spend money in discovering—what? What had already been discovered. Then another writer—a farmer—said that veterinary surgeons knew nothing about Pleuro-pneumonia. Therefore, when the Highland Society instituted a commission to take evidence as to Pleuro-pneumonia, he himself, who was veterinary surgeon to the Society, was passed over, and the man appointed to conduct the investigation was their chemist. What did a chemist know about a cow, or a cow about chemistry? They knew this, then, about Pleuro-pneumonia; they knew that in 1693 Valentin described it; Jacob Scheucher described it in 1732, Mauchard in 1745, Kauch in 1778, Haller in 1773, and Wirth in 1713 described the disease in Swabia. In 1854 it was investigated by a French Commission, of which Majendie was president, and Reynal secretary, and having amongst its members the illustrious Bouley, Rayer, Delafond, Yvart, Renault, Lassaigne, Baudemot, Doyére, De Morny, and others. It had been further investigated by Hering, Hertwig, Bollinger, Ercolani, Corvini, Didot, Gamgee, Simonds, Reviglio, and Dr. Willens, who, in 1851, suggested and carried out inoculation with the virus as a preventive of the disease. He met with some encouragement and much opposition. Reviglio, a Piedmontese veterinary surgeon, published a memoir at Turin in favour of it. Professor Simonds wrote against it, and the French Commission confirmed Reviglio's views. Gamgee introduced it into Edinburgh about 1860, but owing to a want of knowledge in the collection of the lymph, the result was bad. He introduced a needle into the lungs of the dead animal, and then inoculated the lymph into the tail of the living. The greatest care requires to be taken. In 1865, Bouley, during a visit to investigate the cattle plague in London, found inoculation commonly practised by the London dairymen. It was again introduced here by Rutherford, and it was practised now. Seeing that they had such a literature, with so many authorities, extending

over two hundred years, they must really plead not guilty to the charge made against them, that they knew nothing about the subject. Let them now refer to what had been done in other countries to eradicate the disease, and benefit by the conclusions of the investigations. In France inoculation was compulsory, but was never performed until after the outbreak of the disease, and therefore the results were variable, for after a three months' quarantine of the inoculated cattle all restrictions against the dispersion of such are removed, and consequently Pleuro, though diminished, still remains in France. It had also been discovered that 11 per cent. of the inoculated animals died from Pleuro. This proved that the animals were not carefully selected, or that the operation was improperly performed. In Holland inoculation was made obligatory by law in 1878, and losses were indemnified in full. In 1878 and 1879, 148,000 cattle were inoculated, out of which 1,385, or about one per cent. died. By wholesale slaughter in isolated places and slaughter of the disease and obligatory inoculation in dense bovine centres—such as the great distilleries—branding of the inoculated, and the prohibition of the removal of fat beasts without authority from the Government veterinary surgeon, after which they are sent to the butcher and to foreign markets; the same permission being rarely granted for milch cows. Indemnity is given in full for suspected, and one half for diseased; and two million francs have been thus paid in one year. By these vigorous measures the loss has been reduced from 20,918 diseased and 4,383 suspected during the seven years prior to 1878, to 1,265 diseased and 8,400 suspected in the ten years including and succeeding 1878. The number of diseased animals fell from 701 in 1878 to 2 in 1886 and 1 in 1887, thus showing an average of 3,000 diseased annually prior to 1878, and only 126 per annum after 1878. In Belgium they advocate immediate slaughter of the diseased animals only, and after a short quarantine the others may enter the markets. Inoculation now forms a part of the legal measures adopted for the suppression of the disease. In 1882 those attacked amounted to 1,293, while in 1887 they were reduced to 830. In Denmark there is slaughter only and no inoculation. Six times the disease imported from Sweden and England has been promptly extirpated. Sweden and Norway are like Denmark. In Austria there are only half measures. In this, as in most countries, "suspects" are allowed to be killed for diagnosis. Inoculation is only permitted in already infected byres, by consent of the Government veterinary surgeon, at the owner's risk. No indemnity is paid by the State, but by an association. The disease is now gaining ground. The losses in 1878 were 1,400, and in 1887 4,648. In Scotland, in the majority of the districts prior to the "slaughter order," the loss was small, as inoculation being resorted to, only a few animals were killed. Since the "slaughter order" most districts in which the disease has appeared have suffered heavily. Owing to the kindness of many of the "clerks of supply" and "clerks to local authorities," to whom he now tendered his best thanks, he was able to state that twelve districts in which disease prevails paid for the working of the Act prior to the Slaughter Act £7,800, and since the Slaughter Act came into force £27,000. Now, did inoculation introduce the disease? Upon this point there were differences of opinion, and neither side had as yet produced conclusive evidence. The Congress of Paris were now unanimous that it did not, but there were many who from experience have arrived at a different conclusion. In South Africa several outbreaks have been—or are supposed to have been—traced to inoculation, and in order to determine this point he would suggest fuller investigation. All observers were unanimous that cattle that had passed through the inoculation fever do not communicate the disease, and the only question is, Do they, or can they, transmit it whilst the virus is in active operation?

Again, For how long a period did inoculation give immunity? This was not known positively, but in our own experience no outbreaks had occurred upon the introduction of fresh cattle two years after the original stock had been inoculated. The virus was generally obtained from a diseased lung, but there were methods of cultivating it in large quantities and in a perfectly pure condition, and it would be needless to have an exhaustive investigation for obtaining a so-called pure vaccine. Inoculated animals resist a second and more virulent inoculation. Bouley and Willes proved this in ninety cases, whereas in thirty non-inoculated cows inoculation in dangerous regions, such as the breast, resulted fatally in every case; and the same experimentalists proved in six cases that intravenous injection of lymph gave immunity against hypodermic injections repeated one, two, three, and four times; whilst in three unprotected animals hypodermic injections had fatal effects. It had been found that slaughter of the diseased, segregation for a time, and after dispersion by exposure in markets of the non-affected uniformly gave bad results. Now, what were they to do in this country? His opinion was that they should kill all the diseased animals, inoculate all the healthy ones, kill every one that did not take the inoculation fever, giving indemnity from the public funds; that all inoculated animals should only be sold for the butcher; that so long as one animal in the herd had been in contact with the diseased, no animal from that herd should be sold except for fat. All animals introduced into a herd of this kind should be inoculated immediately as a precaution. After all which had been in contact with the actually diseased are slaughtered, the restrictions might then be removed. All byres to be disinfected before they are re-stocked. He thought that we should thus, in course of time, be able to suppress the disease equally as well as by the present very expensive and destructive method.

The CHAIRMAN: Ladies and gentlemen, I think you all cannot but agree with me that we have just listened to a most learned and interesting address, and that our best thanks are due to Professor Williams for the very able and careful manner in which he has brought several matters of deep interest to our notice and for our consideration. It is with hesitation that I attempt to make a few remarks on the points of interest in the address, not that I disagree in the slightest with the views and opinions of my learned friend, but that such points require most earnest and careful study. I can never consider the questions of Tuberculosis and contagious Pleuro-pneumonia without wondering why at the present the government of such a country as ours appears to be taking no part in giving any pecuniary aid, as far as I am aware, to veterinary research. When we have veterinarians differing in opinion as to whether the flesh and milk of cattle affected with Tuberculosis should be used as articles of diet by the human race, and as to the beneficial effects or otherwise of inoculation for contagious Pleuro-pneumonia; when we find these differences of opinion amongst members of our profession, I think the time has arrived when Government should be asked to give some pecuniary aid, and that such aid should take the form of annual grants to the different recognised veterinary schools in our country for the sole purpose of carrying on veterinary research. Our profession, now nearly one hundred years old in this country, has a first claim to the pecuniary aid as mentioned.

With reference to the theory of evolution, although of deep interest, it is rather, I think, often a source of amusement than a matter of serious consideration to many of us. Some gentlemen are of opinion that the frequent occurrence of disease in one part of the body, such as the formation of Splints, the disease of the navicular bone, points to the fact that in time the process of evolution will remove what we at present know in the horse as the two small splints and the navicular bones. I cannot believe to that extent in the

theory of evolution. I am led to ask in the case of disease of the teeth in the human subject—is the same theory to be continued? are we to believe that in time the process of evolution will produce human beings without teeth? If so, we may, I suppose, expect in the far future that toothless veterinary students will be attending colleges, and looking with deep interest in the museums at specimens of splint and navicular bones said to have been present in the horse at some fixed period.

With regard to the operation for Roaring, it is somewhat dangerous ground for me to tread upon. Dr. Fleming, the head of the department to which I belong, appears to take up the question keenly. It seems to me a matter for regret that the correspondence was first started in a daily newspaper and not by a communication to our professional journals, but although he may have appeared to act somewhat selfishly, we cannot but admit that he has worked with great zeal for the benefit of the profession. We have learnt that the two cases mentioned in the first letter to the daily newspaper as having been cured have since been found, and stated by Dr. Fleming himself, in the VETERINARY JOURNAL, not to have been cured, also that the operation has been much modified. The statistics given by Dr. Fleming lead us to believe that the operation, as carried out under his direction, has been a great success in the Army; but on the other hand, I have to state that of late rumours are afloat that the success is not continued, that many of the horses operated upon, although apparently cured for a certain time, are as bad roarers as they were before the operation. I am, therefore, afraid that as far as Government horses, racers, and hunters, are concerned the operation will be of no service, but simply useful in cases of draught animals affected by Roaring to such an extent as to render them utterly useless.

I will not detain you with any further remarks, but conclude by wishing continued success to this College. I hope that in time the young gentlemen now engaged in study may join the veterinary profession, encouraged as they grow older by the example set them by their present learned instructors.

Mr. FINLAY DUN, in proposing a vote of thanks to the chairman, said, Ladies and gentlemen, I now ask you to bring this interesting meeting to a close by joining me in giving a cordial vote of thanks to the chairman for the manner in which he has conducted the business of this afternoon. Mr. Phillips is a good specimen of that band of educated gentlemen, who are in the Army veterinary department and carry to the remote corners of the earth some of the traditions and a great deal of the knowledge and information acquired in the class-rooms of the colleges of this country. Not only do he and others in this department carry the information far and near, but also in their investigations in various countries they have contributed very largely to our knowledge of a number of diseases, and we may expect still greater results from the investigations of this department of the veterinary profession. Besides, Mr. Phillips' coming here to maintain, as he has done, the position of Chairman at this meeting, ought to be an encouragement for a number of you to qualify, as he has done, and enter the Army and study this important scientific branch of the public service. I am sure you will join with me, therefore, in according a most cordial vote of thanks to our friend, and also in thanking him for the way in which he has performed his duty in the chair.

The CHAIRMAN, in replying, said, Ladies and gentlemen, I simply rise to thank you very much for the kind way in which you have received the vote of thanks proposed. I may observe that it is with great pleasure I have found myself able to come here to-day, and it will always be with great interest that I shall watch the continued success of this particular school.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above Association was held at the Blackfriars Hotel, Manchester, September 19th.

Present: E. Faulkner, President; Messrs. Peter and W. A. Taylor, T. Hopkins, S. Locke, W. Dacre, J. Moore, J. B. Wolstenholme, Thos. Greaves, Jas. Ingram, and Peter Pike, all of Manchester; J. F. Carter, Burnley; J. Faulkner, Rochdale; R. C. Edwards, Chester; W. Woods, Jun., Wigan; G. G. Mayor, Kirkham; Thos. Briggs, Bury; A. M. Michaelis, Stockport; Thos. Urmson, Bolton; W. Hall, Royton; the Secretary, Liverpool; Messrs. Williams and England (students).

Apologies for non-attendance were received from Professors Williams, McCall, and Walley; Messrs. J. Malcolm, J. S. Hurndall, H. Kidd, W. Lodge, W. Hunting, and E. Kitchin.

Mr. MOORE nominated for membership of the Association Mr. George Howe, M.R.C.V.S., of Buxton.

The TREASURER announced the receipt of the resignation of Mr. Richard Roberts, late of Kendal, now of Tunbridge Wells, the distance being too great for him to attend. It was accepted with regret.

Proposed by Mr. DACRE, seconded by the SECRETARY, "That a letter of condolence be sent to the family of the late Mr. G. H. Darwell, of Northwich, expressive of the great sympathy of the Association in their loss."

The proposal of Mr. GREAVES, seconded by Mr. J. H. CARTER, "That the meetings of the Association be no more held in Liverpool," was negatived.

Mr. MAYOR exhibited a most beautiful specimen of a calculus, weighing nearly 4 ozs., taken from the bladder of a filly. A most interesting discussion followed as to its character, peculiarity, etc. It was determined that a scientific examination should be made of it by an expert, and the result be announced at the next meeting, Mr. Mayor being accorded a hearty vote of thanks for bringing the specimen before the notice of the members.

Mr. W. WOODS, Jun., then read the following paper on

LAMINITIS.

MR. PRESIDENT AND GENTLEMEN,—The long-continued trade depression—which I hope we are now seeing the end of—has told its tale in many ways, amongst others upon the general welfare of the lower animals, and I am inclined to think that with the great development of the practice of preparing animals for agricultural shows, the keen competition in trade and the combined influences of over-loading, over-driving, and consequent over-feeding have caused an increase of this painful affection in many districts, and having had many cases of it, I have been induced to give more attention to it than perhaps I otherwise should have done. I do not purpose giving in detail a full description of its symptoms, course, etc., for these must be sufficiently well known to every veterinarian engaged in practice, and is therefore not called for at a meeting such as this. My object is to point out the treatment I have found most efficacious, probably to make a few remarks on certain disputed points, and to elicit, if I can, such a discussion as may be useful to us all. I make no apology for bringing so common a disease before your notice, because I think it is doubly important that we should be as nearly perfect as may be in those affections we meet with oftenest, and because the pain of Laminitis is of so excruciating a character, and the sequelæ of such permanent injury to the animal, that if we can by discussion learn something to prevent those occasionally serious consequences the night will not by any means have been spent in vain.

I hope you will not consider I am overloading you with ancient history, but I shall commence by pointing out the enormous progress veterinary

science has made during the last two centuries, for the history of the amount of knowledge and the lines of treatment adopted from time to time concerning this disease forms a staggering indictment against those who would aver that we are not a progressive scientific profession. I have been so much interested in reading some antiquated works on the veterinary art that I venture to read you a few quotations from such authorities, which have mainly led me to the conclusion that any reference to the "good old times" we occasionally hear about would scarcely be endorsed by the poor horses which had the misfortune to come under the treatment of an ancient farrier.

The oldest work I possess on the subject was published in 1623, and as the authors from whom he acknowledges to have quoted and to have followed include Zenophon and Vegetius, I think it is a fair type of the style of argument and treatment in the dark ages of veterinary medicine. The work to which I refer, by one Gervase Markham, is certainly a masterpiece. In his preface he modestly states that he publishes the work, not for ostentation, but for a lasting benefit to the kingdom, and he proceeds, "I dare boldly make this protestation in despite of any that there is not any farrier of worth that doth know or practise any well-working medicine which in this book thou shalt not find, unless he will produce some new hotch-potch of his inventing; and then the medicines herein contained shall work sooner, better, and more effectually."

I think the simplicity and modesty of this confession will be apparent to every one. I propose now to give you *in extenso* his description of inflammation of the feet. The chapter is headed—

"*Of Foundring in the Body, being a Surfeit got either by Meate, Drinke, or Labour.*

"This disease of foundring in the body, is of all surfeits the most vile, most dangerous and most incident unto horses that are daily travelled; it proceedeth, according to the opinion of some farriers, from eating of much provender suddenly after labour, the horse being then, as it were, panting hot (as we may daily see unskilful doe at this day), whereby the meate which the horse eateth not being digested breedeth evill and grosse humours, which by little and little spreadeth themselves through the member, doe at length oppresse and almost confound the whole body, absolutely taking away from him all his strength, insomuch that he can neither goe nor bow his joints, nor being laid is able to rise againe; besides, it taketh away from him his instrumentall powers, as the office both of urine and excrements, which cannot be performed but with extreme paine.

"There be other farriers, and to their opinion I rather leane, that suppose it proceedeth from suffering the horse to drink too much in his travaile being very hot, whereby the grease being suddenly cooled, it doth clap about, and suffocate the inward parts with such a loathsome fulnesse, that without speedy evacuation there can be no hope but of deathe onely. Now whereas some farriers doe holde that this foundring in the body should bee no other than foundring in the legges, because it is, (say they) a melting and dissolution of humours which resort downe-ward, they are much deceived: For it is not as they hold a dissolution of humours, but rather a binding together of corporall and substantial evills, which by an unnatural accident doeth torment the heart. Now for the hold which they take of the name of foundring, as if it were drawne from the French word Fundu, signifying melting, truly I think it was rather the ignorance of our old farriers, which knew not how to entitle the disease, than any coherence it hath with the name it beareth. For mine own part, I am of opinion that this disease which we call foundring in the body, doth not onely proceede from the causes aforesaid, but also and most

oftest by sudden washing horses in the winter season, when they are extreme fat and hot with instant travell, where the cold vapour of the water striking into the body, doeth not onely astonish the inward and vitall parts, but also freezeth up the skinne and maketh the blood to leese his office. Now the signes to know this disease are holding down of his head, staring up of his haire, coughing, staggering behind, trembling after water, dislike of his meate, leannesse, stiffe going, disability to rise when hee is downe, and to conclude, which is the chiefest signe of all other, his belly will be clung up to his backe and his backe rising up like a camell. The cure according to the opinion of the farriers, is first to rake his fundament, and then to give him a glister; which done, and that the horse's belly is emptied, then take of malmsey a quart, of sugar halfe a quarterne, of cynamon half an ounce, of licoras and anise-seedes of each two spoonful beaten into fine powder; which being put into the malmsey, warm them together at the fire so that the hony may be molten, then give it the horse luke-warme to drinke: which done, walke him up and downe either in the warme stable, or some warme roade the space of an howre, then let him stand on the bit fasting two howers more, onely let him be warme clothed, stopped and littered, and when you give him hay let it bee sprinkled with water, and let his provender be very cleane sifted from dust, and given by a little at once, and let his drinke be warm mashes of malt and water. Now when you see him recover and get a little strength, you shall then let him blood in the necke veine, and once a day perfume him with frankinsence to make him sneeze, and use to give him exercise abroad when the weather is warme, and in the house when the weather is stormy. Now there be other farriers which use for this disease to take a halfe peny worth of garlicke, two peny worth of the powder of pepper, two peny worth of the powder of ginger, two peny worth of grains bruised, and put all these into a pottell of strong ale, and give it the horse to drinke by a quart at a time, dyetting and ordering him as is aforesaid; and when he getteth strength either let him blood in the necke veine or the spurre veines, or on both; to conclude, there is no drinke nor dyet which is comfortable, but it is most sovereigne and good for this infirmity."

The following short description from a book published 150 years after the foregoing shows what little advance had been made during a century and a half. It was at this time (1755) described (I am quoting from the text) as an "Inflammation of the Intercostal Muscles which compose the fleshy parts between the ribs. It proceeds from the same cause as the intercostal, and may be known by a stiffness of the body, shoulders, and forelegs, sometimes by a short dry cough in the beginning, a shrinking when the horse happens to be handled in those parts, and perhaps when not well cured it proves the original of that distemper which horsemen and farriers call a chest founder, for when the inflammation is gone off and the viscidity of the blood and juices still remains it may be readily enough bring on such stiffness and inactivity as cannot easily be removed, and is generally known by the name of chest founder."

This very lucid description, however, was not altogether satisfactory to the veterinary scientist of that time. You would think from the foregoing description that they were not too particular as to the exact locality, provided they were at the right end of the body, fore or aft, but such seems not to have been the case, as there appears to have been for a time a lively discussion as to whether it was really the intercostal muscles or an inflammation of what they elegantly termed the midriff or skirt which was the real cause of this peculiar stiffness. They appear to have wound up the dispute in a way satisfactory to all parties, by agreeing that the one was not to be distinguished in practice from the other, from which conclusion perhaps some of us would not be inclined to dissent.

I have given you this in order to prove—if proof were necessary—that profound theorists existed even at that time amongst veterinarians, and to show that the *savants* of the eighteenth century were not behind their *confrères* of the nineteenth in quarrelling about trifles.

You may wonder how they explained dropped sole, and the feet coming off, and that this occasionally happening did not lead them to a more correct diagnosis. This they ascribed to the viscidity of the blood and juices and the stagnation produced thereby, and probably to the natural cussedness of the animal.

The gentleman to whom is due the honour of correctly locating this disease is, I believe, Mr. Blaine, for a time the colleague of St. Bell in London. Erratic enough in his own life, Blaine appears to have been remarkably correct in his observations of diseased processes, and in Laminitis especially to have brought to bear an amount of practical insight which was wonderful, considering the generally accepted opinions of the time. It is true he confused somewhat Laminitis with Navicular Disease, but his description of acute Founder is worth reproducing, as showing the great advance he had made.

He says, "Of all the definite and well-marked diseases of the horse this has been the most mistaken among the older farriers, and the least noticed among modern. I do not know a single work on the subject of farriery that does more than allude to it. I am at a loss to account for this, seeing that though not a frequent disease, it is yet sufficiently common to have been many times met with by every practitioner who has only a tolerable range of veterinary practice." Farther on he writes, "Among common farriers it has been very generally mistaken for an affection of the loins or chest, and thus their applications being made to these parts, it has usually terminated either in the death of the horse or in an incurable lameness. But acute Founder, except as being accompanied with symptomatic fever, is confined to the feet, and has nothing to do with any other part of the body, but may be defined to be an active inflammation of the internal vascuar parts of the feet, brought on by sudden translation of fever to them, or otherwise by any of the common causes of topical fever."

Now I think you will notice what a remarkable advance the language I have just read is upon the literature of only a few years previous. The reason is not that scientific medical knowledge of diseased processes generally had advanced by these leaps and bounds, but that whereas veterinary medicine and surgery had hitherto been left to ignorant shoeing-smiths and the li'.e, it was now taken up by more educated men, including many members of the medical profession. Blaine himself had served a seven years' apprenticeship with a surgeon and afterwards two years in a hospital. Indeed, the history of the advance in knowledge of this disease is simply the history of the progress of the veterinary profession generally for the last hundred years. Blaine's treatment, too, shows a marked advance. He recommends febrifuges, raking, and glysters, "but unless there is actual costiveness, do not give physic."

It is unnecessary to say that he recommends copious bleeding; indeed, up to a few years ago the general idea seemed to be, bleed first, and then endeavour to discover what ails the patient. In addition to the general bleeding, local bleeding from the toe of each affected foot is directed, "after each foot has been well rasped round as thin as prudent, so as to relieve the pressure of the horn on the internal swollen parts." (This is very much akin to the very latest treatment recommended by Prof. Smith, *i.e.*, scoring the crust.) Afterwards poultice with cold poultices and use Goulard's extract as a lotion to the feet. Allow the horse to lie down as much as he will. Do not proceed to exercise until the feet have gained some firmness. This last advice is not

strange when we consider that the soles were pared so thin and bleeding at the toes was a *sine qua non*. Now this description marks, I think, the greatest advance in treatment that could well be made at one jump. It is scientific and practical, and although we have now ceased to pare thin the soles, it is only because such paring was found to favour the dislocation of the os pedis, and so to produce a state of affairs sufficiently serious to necessitate the abolition of that form of remedy.

The next advance in treatment is in the recollection of many here, and may be generally described as Mr. Broad's treatment, the basis of which consists of early shoeing and exercise. The shoe bearing that gentleman's name, being so well known, requires no description from me; that it would receive from the equine tribe a most eloquent testimonial of gratitude I have no doubt, were they only conscious of the cause of the great benefit it confers. Mr. Broad recommends exercise from the very commencement; indeed, he says the congestive or earliest stage is the one in which it is of most benefit, and he adds that it is necessary to be cautious in giving exercise during the stage of active inflammation. As far as I can gather, he does not poultice at all, and except in Laminitis from metastasis, he gives repeated doses of physic at intervals of about four days. My experience of Laminitis has led me to the conclusion that the cases require to be treated somewhat differently according to the cause.

In all cases I believe the best treatment at the commencement to consist in removal of the shoes, poulticing of the feet, and the use of an anodyne lotion to be well rubbed round the coronets. If the patient won't lie down and is in very acute pain I always cast, leaving the hobbles on for a while if there is any attempt to rise. Usually this is sufficient, and the animal settles down and goes to sleep. If of a nervous and excitable temperament, however, and disposed to struggle and attempt to rise, I give a full dose of morphia hypodermically, which usually so settles matters that the patient lies quite contentedly for several hours.

Bleeding from the coronary plexus I have tried often, but never could say it was of any benefit, perhaps for the reason that I never could obtain a sufficient flow of blood to be likely to be of any benefit.

In those cases which arise from concussion, over-exercise, or any cause connected with overwork I have found a moderate dose of physic to be superior to an oleaginous purgative, while in those cases due to over-feeding, want of exercise, or bad ventilation, in which the body is in an asthenic condition, and in that septic Laminitis which occasionally follows parturition in the mare I have found an oleaginous purgative, a full dose of linseed oil, to be the best. With regard to shoeing, I have found that Broad's shoes had better not be applied until the acute febrile stage is over, when they are of immense benefit in most cases. There are cases, particularly those of septic Laminitis following parturition, and in some of those in which there is a gross habit of body, a very fat animal, in which shoeing does harm, and had better not be resorted to; and if in any case the shoes seem to cause the animal more pain and to increase the lameness, I remove them at once. I have found a difficulty in getting a smith to make a good Broad's shoe even with a pattern before him, the tendency being to seat the shoe right from the outside instead of only from the nail-holes, and to make it so that it does not bear evenly on the ground, the inner rim being raised, and what is not perhaps of quite so much importance, to thin the shoe all the way from the toe to the heel, instead of only from the quarters. These little things may sound like details, but I hold they are matters of first importance, and even if they are details I believe the person who attends most carefully to matters of detail is the most successful practitioner. Immediately the physic or oil begins to act, febrifuges—pot. nit. in preference—

should be given in the drinking-water. If owing to the acuteness of the fever it is necessary in the early stages to give anything, I prefer aconite in small and repeated doses. As soon as the pain is sensibly allayed, and there is no sign of separation at the top of the foot, or if the case seems to hang fire for two or three days, neither improving nor going worse, a sharp blister round the coronets is imperative.

I have seen cases improve wonderfully in twenty-fours hours after blistering, that had apparently been at a standstill for two or three days. Of course I don't recommend blistering in all cases, many of them being recovered and ready for work in three or four days. These cases would seem to be rather simple congestion than true Laminitis, and will not be further mentioned in this paper. I should like the opinions of members here to-night as to the best method of treating those cases in which there occurs extensive separation at the coronet. My experience of them is not sufficiently large to warrant my going out of the beaten track of our text-books. With regard to exercise, I rarely exercise for the first couple of days; after that, in most cases, the Broad's shoes can be applied, and exercise becomes most useful. I do not, however, exercise to the extent advised by Mr. Broad, but only for about half an hour twice a day.

Now, I wish to say a few words with reference to the poultice to be applied. I invariably use the coldest poultice I can procure, because I think the arguments, both theoretical and practical, are easily in favour of the cold poultice. Just consider the question scientifically. The inflamed parts are enclosed in an unyielding horny box; the pressure of this box upon the contained swollen tissues increases the pain, and in all probability the amount of effusion from the congested vessels. In applying hot poultices it is evident that the relaxation of the hoof will not be in proportion to that of the soft tissues contained therein; the hot poultice will therefore increase the pressure, and thus increase the nervous irritation or pain arising from that pressure, and so increase the effusion; and remember, increasing the effusion means increasing the probability of dislocating the coffin bone. Therefore the only argument in favour of hot poultices—that it tends to allay the nervous irritation—cannot apply to those parts of the body in which an increase of the effusion or swelling is injurious. None of us, I suppose, ever heard of a hot poultice being applied to a man's head in brain fever; and surely if, as contended, the hot poultice applied to the feet relieves the nervous irritation, that treatment should be doubly applicable to the head, where there is so much more nervous tissue to go at.

Now a word as to pumiced sole. There are two kinds of dropped sole, the most common, unfortunately, being due to effusion and exudation at the anterior portion of the os pedis dislocating the toe of the bone downwards. The only treatment I have found of any avail in these cases is to shoe the horse with a box shoe and leather stuffed well with tar and tow, and have him turned out for a lengthened period on soft land. I have never seen the sole again become concave after the os pedis has dropped. I don't deny the possibility of it, but think it extremely improbable. The second kind of dropped sole is due to actual bursting, from congestion, of the blood-vessels of the sensitive sole, and is what I would call a false dropped sole, because, although it is really convex, as it exfoliates or is pared away at successive shoeings upon the animal's partial recovery, a space is discovered filled with blood-clots and bloody serum, beneath which is found a new sole quite in its proper position. I have seen this in two cases, in both of which the sole ultimately became concave, and the foot as good as ever.

The treatment to prevent dropped sole proposed by Professor Smith I must know more about before attempting, because it seems to me that to saw out a piece of horn from the front of the os pedis and expose the soft

structures would be likely, in the inflamed state of the foot, to lead to the formation of fungous growths which would be found most intractable to deal with. I have, by the kind invitation of Mr. T. H. Miller, of Singleton, had the opportunity of seeing a horse on which this method of treatment had been adopted, but not, it seemed to me, to the extent of sawing quite through the horn, but very nearly. The horse I refer to is the three-year-old royal winner shire stallion Munchausen. Mr. Miller himself is so satisfied that this is the best treatment that he has given instructions to his veterinary surgeon to treat every horse of his in this way, that is, I presume, every case of sufficient severity to cause the fear of a dropped sole. Personally I withhold my opinion for awhile, when I hope to have the opportunity of seeing the horse again. I am afraid, however, from what I have seen, that it will be found that the soles will be convex, which, it seems to me, is the especial aim of this treatment to avert. In the meantime our thanks are due to Professor Smith for daring to adopt this treatment, and I hope we shall await the result of a more extended trial of this method before being too critical, or, at any rate, prejudging its success or otherwise. The latest development in the evolution of Laminitis is the tentative statement by Mr. Stephenson that Laminitis may be hereditary. Of course I cannot pretend to measure my experience against that of Mr. Stephenson, but such as I have gained leads me to be very sceptical as to its heredity. I certainly was well acquainted with a hunter sire whose father had had Laminitis when four years old, and this hunter sire had Laminitis when rising three years old, not very severely certainly, but he has had attacks at intervals since, until now, though not more than eleven years old, he is a hobbling invalid with badly dropped soles. Of all the stock he produced during a four years' service in the district I do not recollect one to have suffered from Laminitis at all, although a certain percentage are now six or seven years old. This, it seems to me, goes to prove that Laminitis is not hereditary, and the circumstance of the entire hunter sire having Laminitis at three years of age and subsequently becoming a cripple from it, whilst his father had it at four years of age so severely that he never did any good after, seems to me to prove nothing more than that the method of forcing young entire horses, which, I suppose, is usual all over the country, is very liable to produce Laminitis. Personally, I could not allow for a moment that it should be classed as hereditary, for if it were I think we should have even more of it than we have amongst cart-horses. My impression is that few cart stallions that have to go the round of agricultural shows manage to pass through their life without an attack of more or less severity, generally due, I imagine, to over-kindness. However, this again is a subject upon which the opinion of this Association may well be taken, because although the statement was a most startling one to me, yet one must remember that the author of the statement is a gentleman whose opinion is deserving of the most careful consideration.

Gentlemen, I am aware that I have placed before you a very fragmentary and disconnected paper, but I hope it may serve its object of eliciting a good and useful discussion, and that whatever may be the omissions—almost unavoidable in a hurriedly prepared article—you will take the trouble to fill them up in the discussion; that whatever may be its shortcomings you will forgive them, and that concerning this disease, which I fear preventive medicine can never eradicate, you will feel with me that anything we can learn from mutual intercourse—and be the malady ever so common and familiar we can surely learn something—will add to the structure of veterinary science that is being built up, and which will in time command from the public that recognition it so justly deserves.

Mr. GREAVES said he was pleased with the manner in which Mr. Woods had dealt with the subject, and thanked him for the trouble he had taken in

preparing a subject for discussion at such short notice. In the course of his remarks he said that during his experience in Manchester he had had many cases. His treatment now was blistering early, applying broad shoes, and exercise.

Mr. J. H. CARTER gave some interesting particulars of a case he had under treatment.

Mr. HOPKINS and Mr. MOORE described "Smith's Operation" for Laminitis and Sidebone, which, in their practice, had proved very effectual.

Mr. DACRE thought they had heard nothing fresh respecting treatment. Regarding Smith's operation, he had met with success in cases of Sidebone. His practice was to cut the groove with a double-edged French drawing-knife instead of a saw. He would also try it in cases of Ringbone the first favourable opportunity that presented itself. He would also recommend it in some of the obscure diseases of the foot, where the horse would not lie down. In his treatment of Laminitis he casts when necessary, and insists upon the persistent application of ice to the feet from the beginning.

Mr. W. A. TAYLOR in his opening remarks also thanked Mr. Woods for his paper, prepared at such short notice. He agreed with Mr. Woods in the cause, symptoms, and effects of the disease. He met with the most difficult cases in over-fed shire stallions. His practice was cold application to the feet, with the internal administration of nitrate of potass and aconite. He believed there was no such thing as Metastatic Laminitis. He had practised Smith's operation with favourable results, but had not yet tried it in Laminitis. He recommended a good airy loose-box, with a bed of sawdust or peat-moss, or a mixture of both.

Mr. WOLSTENHOLME related several cases caused by indigestion, the latter being produced by feeding on bread.

Mr. LOCKE, in answer to Mr. Dacre, did not consider peat-moss to be injurious to the feet.

Several other members also joined in the discussion, after which Mr. WOODS replied.

It was proposed by the PRESIDENT, seconded by the SECRETARY, that a very hearty vote of thanks be accorded to Mr. Woods for his paper, which was carried unanimously.

ARTHUR LEATHER, *Hon. Sec.*

CENTRAL VETERINARY MEDICAL SOCIETY.

THE Nineteenth Annual General Meeting of the Central Veterinary Medical Society took place at the First Avenue Hotel, Holborn, on October 3rd, at 7 p.m.

Mr. ALFRED BROAD, the President of the Society, occupied the chair; the Fellows present were Messrs. Arthur and James Broad, H. Edgar, Gibbings, Gostling, Harrison, Hunting, Hurndall, Kendall, Mulvey, Oatway, Professor Pritchard, Messrs. Raymond, Reddish, Rogers, Roots, Samson, Slocock, Stanley, Wilson, Woodger, Wragg, and Villar; the visitors were Messrs. S. Broad, Eassie, Hill, Hibbard, and Professor Shave.

Letters expressive of regret at their inability to attend were received from Professor Walley and Mr. James Simpson.

Mr. T. HIBBARD, M.R.C.V.S., of Epping, and Professor SHAVE, of the Royal Veterinary College, London, were nominated for Fellowship of the Society.

The HON. SECRETARY read the Report for the past Session, which showed the Society to be in a prosperous condition; it now numbered 79 Fellows in its ranks, and the average attendance at the ten meetings held during the Session was 24.

The Election of Officers for the coming Session was then proceeded with by ballot, Messrs. J. Broad and W. Roots being appointed scrutineers.

On the motion of Mr. ALFRED BROAD, seconded by Mr. MULVEY, Mr. William Hunting was unanimously elected President.

Professors Axe and Pritchard, Messrs. Alfred Broad and Frank Wragg were elected Vice-Presidents, and the following gentlemen members of the Council:—Messrs. Raymond, Fred Smith, W. Roots, F. Oatway, H. Edgar, J. Mulvey, F. Samson, J. Broad, H. G. Rogers, S. Harrison, J. Rowe, and H. D. Gibbings; while Mr. Joseph Woodger was re-elected Hon. Treasurer, and Mr. Sidney Villar Hon. Secretary. As Auditors of Accounts Messrs. Roots and Gostling were unanimously elected.

Mr. F. SAMSON gave notice that at the next Council Meeting he should move "That the investment of a portion of the Society's money be considered."

Mr. FRANK WRAGG proposed, and Mr. SAMSON seconded, a vote of thanks to Mr. Broad for occupying the chair that evening. Mr. Broad suitably responded, and the meeting closed.

SIDNEY VILLAR.

SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY ASSOCIATION.

ON September 18th, the members of the South Durham and North Yorkshire Veterinary Medical Association held their first general meeting at the North Eastern Hotel, Darlington, Mr. Nettleton, Northallerton, president, occupied the chair, and there were also present:—Professor Axe, London; Messrs. J. Fryer, Kirby Fleetham; W. T. Briggs, Stevens, and Toner, Darlington; Deans, Bishop Auckland; Snarry and J. T. Pickering, York; Alfred Peel, West Hartlepool; Lawrance and W. Awde, Stockton; Edmondson, Thirsk; and Dr. Hutchinson, Northallerton.

Apologies for non-attendance were received from T. Marr Harrison, Thirsk; and H. Gelsthorpe, Darlington.

The PRESIDENT, in reading his inaugural address, thanked the members for the great honour they had conferred upon him and expressed a hope that they would see their numbers strengthened, and that the nucleus already formed would in its turn develop into a parent cell. It had long been his wish to see something of the kind formed midway between Leeds and Newcastle, so that they might meet and discuss topics which tended not only to their mutual benefit, but to that of the public generally. All branches of industry had of late made rapid progress, and their profession had kept pace with the times. They were justly proud of their noble profession, for what could be more pleasing than to be able to relieve the sufferings of dumb animals? Things had changed very much for the better of late years, yet much still remained to be done before they obtained that useful position their training so thoroughly fitted them for. There was still a tendency to look upon them too much as curative agents, whereas if their opinions were more generally sought the curative treatment would in many cases not be essential. Their profession had existed as a corporate body since the year 1844, when a Royal Charter was obtained, giving them a professional status, but no great progress was made until within a recent period. It was highly necessary that they should work hand in hand with the medical profession, and endeavour to detect and prevent disease. The slaughter houses, cowsheds, and dairies should be under the immediate supervision of the veterinary surgeon, who, with the medical officer of health, should work with one object in view, that of the health and wealth of the community at large. He wished to make a few brief remarks on diseases affecting the lower animals which had rela-

tion to the human subject, and also to the means of conveyance from one to the other. Year by year the diseases of man and the lower animals were brought into closer relationship, and diseases which existed in one also existed in the other, and required the same treatment for their eradication. They could, however, use other methods than those practised by the medical profession; they could bring the pole axe into force, and though that seemed a very sweeping manner of treating disease, it was in many cases undoubtedly the best. They were free from Rinderpest and Foot-and-Mouth disease, but they still had the troublesome Pleuro-pneumonia to contend with, and there was yet another epizootic, which had wrought greater unseen mischief than any other. He referred to the already much discussed Tuberculosis. Looking at an individual tubercule, they might be led to despise its insignificance, and to ignore its deadly warning, but when they looked at the many thousand nodules existing in one single animal, they could not but recognise that they had an insiduous and deadly disease to fight with. Its progress in many cases was slow, but certain in its results, and in time it affected nearly every organ of the body, including the mammary gland, which secreted the milk used for daily consumption. There was, perhaps, no article of food more easily contaminated, both from internal and external causes, than milk. The mammary gland was particularly disposed to allow a free passage to various noxious and non-nutritive matters to pour into the milk reservoir, thus contaminating the fluid intended for the young. It had been held by many that cattle fed upon grains became diseased in a short time, and though that had not been his experience, he certainly did not advocate the too free use of grains. Cows so fed gave a large quantity of milk, but of an inferior quality, and if the feeding weakened the constitution it would be possible for Tuberculosis to supervene as a result. It was milk in quantity the dairyman wanted, but that was not the kind of milk suitable for delicate people or young children. Grains entered largely into the feeding of cows by dairymen, when they could be obtained, but they should be fresh from the breweries, because they spoiled by keeping. To obviate that, Herr Passburg had applied the principle of evaporation in vacuo to the extraction of moisture from solid substances, and had been successful in constructing an apparatus for drying grains, and two of the machines were being used satisfactorily at Messrs. Guiness', Dublin. An order was issued from the Privy Council for the registration with the local authority of all persons carrying on the trade of cow-keepers and dairymen, for the inspection of cattle in dairies, for securing the cleaning of milk stones, etc.; but was the order carried out, and, if so, by whom? It was, he believed, established beyond all doubt that Tuberculosis could be conveyed from animals to man, and it must be dreadful to think of the quantity of microbes consumed by man in the milk given by the dairy cows. The number of diseased cows in England at the present time was enormous, and yet so long as they could walk and the mammary glands secrete, the milk was used for human consumption. It had been fully demonstrated that calves born of healthy parents and suckled by a tuberculosed cow, had died when a few months old from acute Diarrhœa, and, on a *post-mortem* being made, had been found to contain innumerable caseous, and even calcareous and grey tubercule Tumours. Looking at that serious fact, was it not within the bounds of possibility that that might be one great cause of so many children dying also from Diarrhœa when a few weeks or months old? The virus capable of producing Tuberculosis when inoculated into the lower animals was discovered in 1843, and Kock in 1881 found the poison to consist of a rod-shaped microbe. He found the microbe was in length equal to the diameter of a red blood corpuscle. When stained with certain colours it presented a dotted appearance, showing that the protoplasm forming its body was interrupted. That condition was indicative of its power

of reproduction by spores, and the spores of microbes had greater vitality than the adult microbe. No one would deny that the disease was on the increase, and so long as it was allowed to run rampant they must expect it to be so; but if measures were enforced to stamp out all infected cattle, he had every hope that they would have less Phthisis in the human being. One striking feature which he had repeatedly noticed, was the rich appearance of the cream given by a tuberculosed cow. The owner would remark, "This cow gives the richest milk of any on the farm." But was not he (the President) right in saying the appearance was due to the milk being charged with pus cells liberated in abundance from the diseased lacteals, which must always exist in a chronic and advanced case of Tuberculosis? The etiology of Tuberculosis had been very much discussed. There was no doubt of its being hereditary, and animals with long attenuated figures, long and narrow chests, were those most liable to be attacked. Independently of hereditary influence, he had no hesitation in affirming that certain external circumstances, such as bad food, dark, badly-ventilated houses, excitement, fatigue, heat and cold alternately, etc., would either directly or indirectly tend to the development of the disease. The breeds of cattle most subject to the disease were Alderneys and Guernseys, and he had never met with a case amongst black cattle. To cause a gradual extinction of Tuberculosis, affected animals should come under the Contagious Diseases (Animals) Act, and compensation should be paid as in cases of Pleuro-pneumonia. No fine, however, should be inflicted on the owner for not reporting cases, because the disease might exist for a considerable time before it could be detected by an ordinary observer; but it would be his duty, on finding an animal losing condition, to call in a veterinary surgeon to determine the nature of the disease, and if the animal was found to be suffering from Tuberculosis, the case should be reported to the inspector and at once slaughtered. His opinion was that the carcases of animals affected by Tuberculosis should not be used as food. In cases where animals known to be diseased were bought by butchers for a few pounds and offered for human food, a severe penalty should be enforced. Against cases where a butcher had paid a fair market price for an animal, which was afterwards found to be diseased and ordered to be destroyed, provision should be made by bringing it under the Contagious Diseases (Animals) Act. The inspection of the slaughter houses should be in the hands of the veterinary surgeon, and from a sanitary point of view the advantage of public over private slaughter houses was very great. Private houses were most objectionable, and should not be tolerated by any town, being frequently situated in crowded unhealthy localities, and often kept in a filthy condition, and all kinds of diseased animals were therein dressed and sent into the market for sale. In fact, they were left without control. Slaughter houses should all be public, and situated on the outskirts of the town or near a station or landing-stage, and if private houses were tolerated they should be under strict supervision, and the inspector should give every attention to the animals slaughtered. He believed 9-10ths of the diseased meat offered for sale was slaughtered in those private houses. The inspector should undoubtedly be a veterinary surgeon, none other being so properly fitted for the post, and he should have a thorough knowledge of his duties and have an extensive and varied experience of the different subjects connected with the matter, and must note the characteristics of healthy and unhealthy meat, and the effects of various influences, physical, and otherwise, upon it. He should also have a thorough knowledge of comparative pathology, and should be able to work with free hands; he should not be allowed to practice privately. In fact, a department should be formed for the inspection of slaughter houses, cowsheds, etc., and carried out on the same system as the Excise. The community would then be better protected from

dangerous diseases, whether conveyed directly from animal to man or through the milk from dirty and carelessly kept dairies and dairy utensils. Even if they had any doubt about Tuberculosis being transmissible—which they had not—every means should be tried to stamp it out. He feared they could never hope to effectually free themselves from it, but they could minimise it very much. The relative frequency with which the disease appeared among fowls seemed to be not generally known, but from direct experiment and clenical observation it was proved not only that fowls contracted the disease by swallowing the expectorated bacilli, but that that thereby formed a vehicle for the further transmission of the disease to man and the lower animals.

I will not detain you longer, gentlemen. I had intended to treat this most important subject more fully had time permitted. I must apologize for the meagreness of this paper, which was hurredly put together during the spare moments of a busy life. In conclusion, my thanks are due to Dr. Fleming, and Professors Williams, Brown, and Walley, to whose writings I have referred.

Mr. PICKERING said he believed Tuberculosis was one of the most contagious diseases they had to contend with, and it was transmissible through milk; but with regard to the flesh, he thought that might be used for food if the mammary gland was not badly affected. There was a very great alteration needed in the way cowsheds were kept in York, some being in a very bad state. He thought the paper a very practical and valuable one.

A vote of thanks was accorded the President for his address, the discussion on which was postponed.

After the meeting, Professor Axe operated upon a horse affected with Roaring, and subsequently the members dined.

ROYAL SCOTTISH VETERINARY SOCIETY.

THE annual meeting of this Association was held on October 2nd, in the Royal (Dick's) Veterinary College, Edinburgh. Professor Baird occupied the chair.

Members present:—Professors Walley, McFadyean, Baird, Dr. Aitken, Messrs. Burnett, Campbell, Pender, Gilchrist, Whyte, Cowan, T. P. Young, Ferguson, Braes, Wallace, Porteous, and Fairbairn.

Professor McCall, Dr. Moir, and Mr. Malcolm were present as visitors.

The minutes of the previous meeting having been confirmed, the following gentlemen were elected members of the Society:—Mr. King, Ayr, and Mr. Baines, Golspie, proposed by Prof. Walley and seconded by Mr. Burnett. Mr. Young, Haddington, Mr. Pender, Lockerbie, and Mr. Braes, Linlithgow, were nominated for election.

Principal WALLEY then initiated a discussion on Pleuro-pneumonia.

Principal WALLEY said:—Of late we have witnessed a remarkable recrudescence in the newspaper agitation as to Pleuro-pneumonia, some of these organs, in fact, raising the subject to the dignity of a crisis; and while this agitation has largely arisen in consequence of the publication of reports by the various local authorities, of the bill of costs connected with the carrying out of the provisions of the Slaughter Order, I am afraid very much of it has had a selfish origin, and has been entered upon for such purely selfish purposes as a desire for fame, or, on the part of some, from a desire to pose as authorities on the question. But while such have been the motives of some of those who have engaged in the controversy, there are others whose sole object has been the harmless one of airing a particular hobby.

Again, there are others—"croaking pessimists" shall I call them?—who have endeavoured to show that some prophecy they may have given utterance to, to the effect "that wholesale slaughter would never eradicate the

disease," has been proved to have been correct by the fact that the measures now in force have failed to exterminate a malady which has been in our midst for upwards of half a century in the short space of eighteen months. Even the old cries of *spontaneous origin* and of "*the cure of Pleuro-pneumonia*" have been revived; and the further statement is made that the Slaughter Order has encouraged concealment, and has neither added anything to our knowledge of the nature of the affection or of the means of dealing with it—matters which some propose to elucidate by means of experimentation. There are some correspondents, too, who still blame the large cities, as London, Edinburgh, and Dublin, for spreading the disease.

The Slaughter Order.—Having briefly reviewed this correspondence, I propose in the next place to deal *in seriatim* with the various statements and assertions to which I have directed your attention, and firstly, in reference to the asserted failure of the Slaughter Order. Some time since, in referring to the suppression of Pleuro-pneumonia, I made a statement to the effect that "if I were given a free hand I would undertake to eradicate the disease from these islands within the space of two years," but in making this statement I had in contemplation a very different method of dealing with the disease than that now in vogue. So far as it goes, the Order is radical enough in its aims, but it fails grievously in several essential points, which those amongst you who heard my remarks on the subject in this place, at the time the Slaughter Order was promulgated, will remember I directed attention to in the short address I gave on sanitation.

Concealing Outbreaks.—The Order in its present form deals only with revealed or known centres of the disease, it says nothing as to the discovery of these centres, nor does it take any steps towards the attainment of this end; in fact, according to some, it favours the concealment of these centres, and in reference to this view of the case I would ask, are there any measures that could be devised that would effectually put an end to attempts at concealment? I have known the disease for the past thirty-two years, and, without egotism, I may say have had opportunities of becoming acquainted with it, which have been enjoyed by few practitioners now living in this country. I say I have known the disease for thirty-two years, and during the whole of that time—when there were no measures in force relating to it, when there was only restriction and compensation, and on through the period over which the Slaughter Order has extended—the feeling has existed amongst a certain class of stock owners that they were justified in concealing the existence of the disease for their own selfish purposes; and this feeling has not only existed in reference to Pleuro-pneumonia, it existed in connection with Cattle Plague, Foot-and-mouth Disease, and Sheep Scab, and it exists now in connection with Swine Fever, Glanders, and Anthrax; and will continue to exist so long as the world lasts and selfish people live in it.

Means of discovering Outbreaks.—Now, Mr. President, I would substitute for the term "concealed centres," the exact opposite term, "undiscovered centres," and repeat what I have said over and over again, that it is the duty of the Executive to find out these undiscovered centres: 1st, by abolishing all private slaughter-houses; 2nd, by establishing public abattoirs, and insisting that all dead meat shall be taken to a *receiving house* connected with these; 3rd, by appointing a staff of veterinary (not police) inspectors for the whole country, as was done in Cattle Plague time; 4th, by making the notification of disease compulsory, and by the making of *post-mortem* examinations of the carcases of all dead animals by State-paid veterinary surgeons compulsory; 5th, by substituting imperial for local compensation; 6th, by increasing the area of infected circles, so far as the public exposure of animals for sale therefrom is concerned, and lengthening the period of segregation. In this country segregation of infected places for

fifty-six days has always been considered sufficient, and the consequence has been that very frequently immediately on its expiry, or shortly afterwards, fresh cases of the disease have occurred. In continental countries, the isolation or maintenance of the cordon extends to months; and in Canada a quarantine is insisted on to ninety days; in the United States and Australia to many months; and in Denmark segregation extends over six months, or even more: 7th, by giving power to the veterinary inspector to seize and slaughter every sick animal in which the symptoms are such as to afford reasonable grounds for the suspicion that it is suffering from Pleuro-pneumonia; 8th, by scheduling Tuberculosis as a contagious disease; and, lastly, by placing the control of all measures introduced for the purpose of suppressing not only this, but other maladies of a similar nature, in the hands of one Central authority.

If such measures as these I have just sketched were enforced, it would be almost impossible for unscrupulous persons to hide the existence of the disease in their premises for weeks or months, while they, during that period, are bringing or sending the carcases of the affected animals to convenient depots, and consigning the live animals to public sales or markets, and in this way scattering the disease broadcast through the country.

Will Pleuro always be with us?—And what of the cry as to the perpetual existence of the disease amongst us? You and I, Mr. President, were not alive a century and a half ago—probably neither of us recollect distinctly the occurrences of half-a-century since, even—but it is nevertheless a matter of history, that for one hundred years prior to 1842, Pleuro-pneumonia was a stranger to this country; and looking back over the past quarter of a century I can see in my mind's eye counties and districts free that were at one time hot-beds of the scourge. Even in this very city there has been a period of two years of absolute freedom from the disease since I have been dealing with it in an official capacity.

In Holland, Switzerland, Norway, Sweden, Denmark, and in many of the North American States, it is no more known; and in face of these facts what right have we, I ask, to adopt the pessimistic view that Pleuro-pneumonia is always to be a scourge to our herds? *Periodical epizootic waves* of this, as of all other similar maladies, have swept over our country, but there cannot be any periodicity of such epizootic waves if we take the trouble to annihilate the essential element upon which they depend. There were some who prophesied that when Foot-and-mouth Disease was suppressed we should be visited by a periodical epizootic in due course. Well, we have waited for years for this recurrence, and it has not yet put in an appearance.

No Spontaneous Pleuro-pneumonia.—The doctrine of periodicity had a worthy congener in the *doctrine of spontaneity*. Life cannot be brought into existence by fortuitous influences, and if we believe, as we are bound to believe, and as all analogy teaches us, that Pleuro-pneumonia is due to a specific germ, then are we further bound to discard the notion that the disease can be induced by any concatenation of circumstances that man can bring about. Starvation, bad hygienic conditions, exposure, ill-usage, debility, and all other similar forces combined, will not produce one single case of Pleuro-pneumonia. All the cases we meet with must have been due to others, and as reasoning and intelligent beings it is our duty to find out where these other cases are hidden.

Pleuro-pneumonia Incurable. — The assertion that Pleuro-pneumonia can be cured is as little worthy of consideration as is the doctrine of spontaneity, but we cannot pass it by unnoticed. In the early days of my acquaintance with the malady I treated, and assisted in treating, as many cases of Pleuro-pneumonia as most men, and at one time thought a cure was frequently effected. The fact cannot be too strongly stated that *there*

is no cure for Pleuro-pneumonia; a lung or a part of a lung once affected can never again be restored to its original condition, but, on the contrary, it becomes for many months a slumbering volcano, waiting only for the influence of some disturbing agency to again rouse it into destructive action.

Disseminating Centres of the Disease.—Now as to the large cities being, as it is asserted by some, distributing or disseminating centres of the disease, I know nothing of London, but I have learned something of Dublin, and I think it may be allowed that I do know something of Edinburgh. In reference to Dublin, there can be little doubt but that one time it was a centre from which the disease was spread broadcast through the country, but at the present time I think I may confidently say that while it is still a slight or probable source of danger, every possible means are taken to prevent the infection of the thousands of animals which are annually shipped for this and other countries at the port of Dublin. From an intimate acquaintance with those engaged in the sanitary work of the port, and with the manner in which this work is carried out, I am in a position to assert that no animals passing through the city of Dublin for embarkation to other ports ever come within the range of even possible sources of infection.

In reference to Ireland generally, I have met with only one case of Pleuro-pneumonia in recently imported Irish cows during the last epizootic of the disease in this city.

Now in reference to Edinburgh, we have been frequently told that we are a *disseminating centre;* I do not deny that this may be so, but we are to a far greater degree *a receiving centre.* We receive animals from all the surrounding counties, from the northern counties of England, and from Ireland, and these are dispersed throughout numerous grazing districts and dairying centres. We adopt every means in our power to prevent the introduction of disease, and for detecting its presence when it is introduced; but an unscrupulous dealer comes amongst us and swamps our market with an infected stock from one of those undiscovered centres to which I have already alluded, taking care at the same time not to risk the sending amongst us of any animal palpably diseased, and the result is we become the victims of the cupidity of one man or of the supineness of another Local Authority, or, what is of more importance, the supineness of the governing body of the country.

Dairy Cows Spreading Disease.—Unfortunately, too, the animals which most usually introduce the affection are cows, the only class of cattle that find a home within our bounds; and one infected animal may be the means of carrying, indirectly, death and destruction into the midst of our dairies. And what remedy have we for this, or to whom are we to look for protection against it?

I have said that all that can possibly be done to guard against the introduction of disease is done, but if you consider for a moment the difficulties with which we have to contend in carrying out protective measures, you will see that there is little wonder we do sometimes become the medium through which disease is spread abroad in the surrounding districts.

Cows in an advanced stage of pregnancy, or that have just calved, are sent long railway journeys to the city, jostled and tumbled about in railway trucks, exposed to the effects of cold, hunger, and fatigue; they are put into our byres and washed from head to foot, then allowed to dry as best they may, and exposed the following day to the effects of inclement weather, and with this they are gorged with succulent food for the purpose of increasing the flow of milk, and in the vast majority of cases the lacteal secretion is allowed to accumulate to an inordinate degree, thereby inducing, with the other influences mentioned, a febrile condition, which frequently masks any evidence that may be present of the existence of disease of an important character.

So far as the spreading of disease by the dairy cows of the city is concerned, I am in a position to say that the danger in this direction is infinitesimal, as there is not one animal in 1,000 sent out of our byres for any other purpose than for slaughter, and the vast majority of these cows never come in contact with store animals after they leave the byres; they are sent direct to the fat stock marts, on fat stock sale days, and are drafted thence to the various fat stock centres for immediate slaughter. The only danger that arises within the city is the returning to the markets of animals which have been purchased on previous days of sale and found to be amiss after coming into the hands of the purchaser. Even this danger is guarded against as carefully as is possible.

Experimenting with Pleuro-pneumonia.—I have already remarked that a certain proportion of those who have written on this subject have advocated the adoption of experimentation on a *limited* scale, with the view of clearing up doubtful points as to the nature of the malady and its cause. Now, Mr. President and gentlemen, I would ask you—of what value can *limited experimentation* be in this country, seeing that *unlimited experimentation* has been carried on in various continental countries for many years past, and seeing that much study has been devoted to the subject by men of far greater experience and with far greater opportunities than are possessed by any past or prospective experimentalist in this country? I do not undervalue experimentation. On the contrary, I would give it every support in my power; but at the same time, I do not anticipate that substantial good can come out of it. In this country experimentation by veterinary surgeons, whether associated with biologists or not, has never been liberally encouraged, and even when attempts have been made by some of us to improve the method of inoculation, those attempts have been met with undeserved and ignorant censure, even from amongst the ranks of our own profession.

The Great Cause of its Persistence.—If the stamping-out process has not taught us much, it has at least gone far towards verifying the opinions we have held as to the nature of the disease and the causes of its persistence amongst us. It has emphasised my contention of many years' standing, that the great cause of the persistence of Pleuro-pneumonia in this country is the existence of infective centres of the disease in the lungs of animals which have been exposed to the contagion, but in whom there has been little or no evidence that they are the subjects of the malady. It is now some fifteen or sixteen years since I first promulgated the belief I had arrived at as the result of observation and experience, that animals which had suffered from the disease were

Living Centres of the Infection, and that they were a source of untold mischief. This belief or opinion was, on its publication, endorsed, in the first place, by Professor Ferrein of Berlin, and it has been accepted in this country by all veterinary surgeons whose opinions are worth notice or respect; and the result of the Slaughter Order has more than established the truth of my belief, for with few exceptions the outbreaks that have taken place in this city during the last eighteen months have been traceable to such centres of infection, and particularly has this been the case in those outbreaks which have owed their origin to cows from Cumberland. These infective centres have been a source of mischief, too, in the case of other districts, and especially in Fife, for, with one or two exceptions, such centres have been discovered in every lot of animals that has been brought to our abattoirs for slaughter as *healthy animals that had been in contact with diseased animals.*

Wrong Conclusions.—Moreover, these infective centres are often the means of giving rise to wrong conclusions as to the particular animal which has introduced the malady; and one example of this I will give you. A few

months ago an outbreak of Pleuro-pneumonia took place in an Edinburgh byre. The first case that was brought under my notice was in an Ayrshire cow that had been purchased about six or eight weeks previously at Dalkeith; but on inquiry it was discovered that the bulk of the cows in the stock had been brought from a byre in the district of a neighbouring local authority a short time before the date of the outbreak, and in slaughtering out the stock one animal that had been purchased seven months previously from one of the lots of contaminated Cumberland cows sold in the Edinburgh market was found to have a very old encysted Pleuro-pneumonia lung, or portion of lung, in a state of active degeneration, and two others were subsequently discovered with cysts of a more recent date. In the *pre-inoculation period* in this city we found that in all the instances in which the disease lingered in a byre, in spite of our efforts to suppress it, its continuance was coincident with the unconscious retention in the byres of cows in whose lungs old cysts existed, and that so soon as these were discovered and got rid of the disease disappeared also.

In the *inoculative period* my experience was an identical one, and if time permitted I could give you particulars of case after case in which, in spite of inoculation, the disease continued to develop until the animals with old centres in their lungs were discovered and slaughtered.

Inoculation Impotent.—The argument that inoculation renders these old pulmonary centres harmless is one that will not bear the slightest examination; it is based on ignorance of pathological processes, it is an attempt to deceive the unwary, and it is disproved by practical experience.

But if more evidence were needed of the impotence of inoculation as a reliable suppressive measure, it has been furnished during the past twelve months. Altogether some half-dozen cases have been brought to my notice in which animals inoculated by experienced operators have contracted the disease on its introduction to byres from external sources months after the period at which they were operated on and *rendered proof* or *protected* against the malady; but of these instances I will only direct your attention to two. In the first of these the disease was introduced by a Cumberland cow to premises in which stood, in two separate byres, (*a*) a lot of cows inoculated successfully six months previous; (*b*) another lot of recently purchased cows, which were only inoculated at the time of the outbreak. A short time after the slaughter of the Cumberland cow, *two cows of the* (*a*) *lot with docked tails developed the disease*; but, let it be noted, they had never been in absolute contact with the diseased cow.

In the second instance an outbreak of Pleuro-pneumonia occurred in two byres in a well-known dairy district in the city, and as a result thereof most of the cows in the adjacent byres were inoculated by an experienced operator, and three months afterwards a cow in one of these byres developed the disease with exceptional virulence, and on slaughtering out the herd we did not find another case, showing that the malady must have been contracted from the affected animals in the adjacent byres.

Value of Inoculation.—Inoculation is valuable as an accessory to other and more radical measures of prevention and suppression; it never has, nor ever will, eradicate the disease from any country, and those who trust to its doing so trust to a broken reed. If one attack of the natural disease will not in every instance protect against a recurrence of the malady, how can we expect that an induced and a milder attack will protect? Even the inoculating Continental countries have failed to get rid of Pleuro-pneumonia by inoculation, and its failure has been practically acknowledged by the recent vote of the Paris Congress, to the effect, "*that inoculation can only be recognised as an auxiliary measure to slaughter, and as a reasonable cause for delay in carrying out the latter*," but in the next breath it was decided by the Congress

"*that inoculated animals must have no other destiny than the slaughter-house.*"

With these resolutions I cordially agree; the conclusions are those at which I have long arrived. I have stated over and over again that inoculation is only of use in the prevention of Pleuro-pneumonia, and that is as a *protective measure* in areas or circles in which Pleuro-pneumonia has made its appearance, and in stocks in those areas in which it is believed that the animals are not actually affected with the disease. Even a well-known and an experienced inoculator in the neighbourhood of this city emitted a declaration some time ago to the effect, "that every inoculated animal, when fit (fat), might go straight, and by float, to the slaughter-house."

The Slaughter Method.—The method of slaughter for the suppression of Pleuro-pneumonia has been dubbed a brutal and unscientific one. I would ask, In what way does the element of brutality come in, seeing that every animal of the bovine species that is brought into this world is destined for slaughter unless death from some other cause results? And as for the charge of its being unscientific, I am quite willing to admit the charge within a certain limit; but it has been proved on many occasions that it is the only method capable of bringing about the actual suppression of contagious maladies; and I am bold enough to assert that no malady of this class has ever been got rid of without its assistance.

It is obvious that such a method could never be made applicable to the suppression of contagious maladies in the human subject, although a statement has been recently going the round of the press to the effect that a Russian minister, being charged with the suppression of an outbreak of plague in a village, deliberately placed a military cordon round the doomed area, and, after saturating the buildings with petroleum (or paraffin) consigned the village and its plague-stricken inhabitants to the flames, with the result that the plague was effectually suppressed.

The Stamping-out Process.—In reference to this matter I would ask, by what means have the different contagious maladies that have at various times raged in this country been got rid of except by the "stamping-out" process? In 1862 Sheep-pox was introduced amongst certain flocks in the neighbourhood of London; at that time, as now, there were two schools of suppressionists—one advocating inoculation, the other slaughter. After a trial of the former, and its failure, the advocates of slaughter, amongst whom (and probably the most important) was Professor Simonds, had their innings and won. In 1865-6 Cattle Plague ravaged our herds, and for months the scientific section of the suppressionists held the field with vaccination, introduced, be it remembered, by members of the medical profession, and once more, after they had had their innings, the *brutal method of suppression by slaughter proved the winner*, as it has in every outbreak that has occurred in this country since. What *but practical* measures were employed for the suppression of Foot-and-mouth Disease? Have any other than practical measures been adopted for the suppression of Swine Fever, Glanders, and Rabies in this city and in other places? What has science effected in the eradication of Scarlet Fever, Measles, Typhoid Fever, Syphilis, Leprosy, and a host of other similar maladies? Why even in scientific Paris a resolution was passed at the Congress the other day, demanding the application of the most rigid, practical measures for the suppression of La Maladie du Coit.

If we want to lift the cloud that has so long hung over us, if we would regain our credit with the great stock-importing communities of the world, and remove those harassing restrictions which are in force against us in the Scandinavian States, in many parts of the United States of America, in Australia, and even in our own Colonies, we must put our shoulder to the wheel and spare no effort, be it never so radical in its tendency, to rid these

islands from a scourge which has for long been a hindrance to the prosperity of the stock-raising portion of the community, and a disgrace to our sanitary system and to our sanitary knowledge.

(*To be continued.*)

Army Veterinary Department.

Gazette, September 27th.

YEOMANRY CAVALRY, MONTGOMERYSHIRE.—John Christopher Rowlands, gent., to be Acting Veterinary Surgeon.

Obituary.

We regret to announce the death of Mr. W. Cawthorn, M.R.C.V.S., of Hadlow, Kent. He was one of the early members, and we believe the treasurer, of the Southern Counties Veterinary Society. He graduated in 1851.

The following deaths have been reported:—

Mr. C. Waterman, M.R.C.V.S., Reading, Berks, who graduated in 1851; and Mr. J. Carruthers, M.R.C.V.S., Wigton, Cumberland, a graduate of 1887.

Notes and News.

THE BEST DISINFECTANT.—Recent investigations have shown that gaseous substances, such as sulphurous acid gas and chlorine gas, which have been often used for the purpose of disinfecting buildings, cannot be relied on, and that the only disinfectant that can be depended upon to kill micro-organisms, particularly those capable of producing the infectious diseases, is a free application of a solution of perchloride of mercury. It is well to have this solution slightly acid, coloured also in such a way that it shall not readily be confused with drinks or medicines; and proper precautions should be taken to prevent accidents in its use. The solution is made by dissolving half an ounce of corrosive sublimate and one fluid-ounce of hydrochloric acid, in three gallons of common water, with five grains of commercial writing blue, or ordinary violet ink, to give the fluid a conspicuously distinguishing character. The solution is easily made, keeps well, is very inexpensive; it should not be further diluted, and is easily applied. The use of non-metallic vessels (wooden or earthenware house-tubs or buckets) should be enjoined on those who use it. It should be applied with a whitewasher's brush, and a syringe should be used to squirt it into any nooks or interstices which the brush cannot reach. Wherever used, the solution should be liberally applied, and should be allowed to remain over night on parts which animals are likely to touch (mangers and racks, for instance,) and which should be afterwards washed with warm water in order to remove the mercury.

DISTEMPER IN DOGS.—A correspondent of the *Sportsman* writes that he has been rearing dogs for over thirty years, and has never had a single case of distemper. The preventive treatment is by inoculation when six weeks old. It is further averred that a dog that has never suffered from distemper is never liable to rabies in any form in after life.

COW-POX IN ITALY.—The Animal Vaccination Committee of Milan has recently had a windfall, in the form of a supply of lymph derived from a herd of cattle in which Cow-pox had spontaneously broken out. On August 3rd the Prefect of Sondrio (N. Italy) announced that natural Cow-pox had appeared in a herd in the commune of Cosio, in Valtellina, at a height of 2,000 mètres, near the top of the Tagliata Alp. The eruption had shown itself on the udders on June 27th, and of the eighty cows only four had not been attacked. The herd was examined on August 8th by a veterinary surgeon, who found marks of the disease in a great many of the animals. One of them was found to have pustules still full of lymph, from which some glass tubes were filled and despatched to Milan. On August 13th the Milanese Committee inoculated a healthy cow with this lymph in more than fifty places. On the 19th it was found that all these points had taken; and on the 20th, after careful examination of the bovine vaccinifer, which was found to be perfectly healthy, the lymph was successfully used on the human subject. This is the twentieth time in twenty years, and the third in the present year, that the Milanese Committee has been enabled to renew its lymph supply in the same manner, the last occasion having been in March of the present year.

THE SALE OF HORSEFLESH LAW.—By the just-passed Act (52 and 53 Vic., c. 11) to regulate the sale of horseflesh, it is provided that in future no one is to sell, offer, expose, or keep for sale any horseflesh for human food, elsewhere than in a shop, stall, or place over or upon which there shall be at all times painted, posted, or placed in legible characters of not less than four inches in length, and in a conspicuous position, and so as to be visible throughout the whole time, whether by night or day, during which such horseflesh is being offered or exposed for sale, words indicating that horseflesh is sold there. And no one is to supply horseflesh for human food to any purchaser who has asked to be supplied with some meat other than horseflesh, or with some compound article of food which is not ordinarily made of horseflesh. To ensure these beneficent objects, power is given to medical officers of health and inspectors of nuisances to inspect any meat which they have reason to believe to be horseflesh which is exposed for sale, and to seize it if necessary; and power is given to magistrates to grant warrants for search and to make orders with reference to the disposal of horseflesh. The penalty for offending against the said Act is a maximum of £20, and if any horseflesh is proved to have been exposed for sale to the public in any shop, stall, or eating-house which is without a "horseflesh placard," without anything to show that it was not intended for sale for human food, the onus of proving that it was not so intended shall rest upon the person exposing it for sale. Lastly, for the purposes of the Act, the term "horseflesh" is to include the flesh of asses and mules, and shall mean horseflesh, cooked or uncooked, alone or accompanied by or mixed with any other substance. This new law came into force on Michaelmas Day.

THE LONDON DOGS' HOME.—The Secretary of the Dogs' Home has given a return for the month of September, from which it appears that no fewer than 2,619 dogs were received, fed, and sheltered at the Home during that month, and that nearly 400 homes were found for the more fortunate ones. The growing popularity of the "Home" is seen by the large number of visitors (3,158) who inspected the establishment during the month.

DOES SALTING MEAT DESTROY BACTERIA?—Professor J. Forster, of Amsterdam, has published an account of some investigations made in his laboratory by himself and Heer de Freytag, having for their object the determination of the effect of the common process of salting or pickling meat on various forms of bacteria. It was found (says the *British Medical*

Journal) that cholera bacilli were soon destroyed under the influence of abundance of salt, usually in a few hours; but that typhoid bacilli, pyogenic staphylococci, the streptococci of Erysipelas, and the bacilli of porcine infectious diseases frequently retained their vitality for several weeks, or even months, in spite of the presence of abundance of salt. The same was also true of the bacilli of tubercle. In some cases these bacilli were found alive after being two months in pickle, their vitality being proved by their capacity for infecting new cultures. Portions of the viscera of a tuberculous animal, preserved for a considerable time in salt, were found capable of causing Tuberculosis in a healthy animal when introduced into its peritoneal cavity. Experiments on the spleen of an animal which had died of malignant Anthrax showed that salt possessed the power of destroying the bacilli of this disease in about eighteen hours. These, as well as cholera bacilli, were found to require $7\frac{1}{2}$ per cent. of salt to destroy them. From these facts it would appear that salting or pickling has but little destructive effect on many of the more common forms of bacilli liable to be found in diseased meat.

CONTAGIOUS PLEURO-PNEUMONIA INOCULATION.—The experiments of inoculation against bovine contagious Pleuro-pneumonia, under the management of Professor Dr. Schuetz and Dr. Steffen, at Magdeburg, have given full satisfaction, and the favourable results were published recently. The trial animals were inoculated with fresh warm lymph, and were under observation for eight months. The opinion in Germany is that carefully inoculated animals are protected from Pleuro-pneumonia.

SWINE PLAGUE IN DENMARK.—An epizoöty of Swine Plague has broken out among the swine at Roeskilde, near Copenhagen.

Correspondence.

VAGINAL CYSTS.

DEAR SIR,—No one has enjoyed more pleasure than I have in reading, in the September number of the Journal, the first part of "Diseases of the Urinary and Generative System." It is excellent. On page 194, the writer, A. E. Macgillivray, M.R.C.V.S., speaking of cysts in the vagina, says he cannot account for them. Now I reason that they cannot be anything but "retention cysts"—simply the distention of the canals of Gartner. At the time of gestation these canals are very evident. Perhaps consulting Bland Sutton would give the writer above mentioned some light.

Hillsborough, Ohio, U.S.A., *Oct. 5th.* S. R. HOWARD, V.S.

VETERINARY CANDIDATES.

DEAR SIR,—"The cowl does not make the monk," neither does the diploma of the R.C.V.S. make the veterinary surgeon.

A man must be *born* a horseman; he cannot be made one. A lad who notices the different horses as they pass him, and offers some remark about them, and would walk six or seven miles to see the hounds thrown off, or run a mile to get across the pig skin; this is the sort of boy of which to make a veterinary surgeon. That man who enters our profession with the *sole idea of making* the "almighty dollar" makes such a mistake!

Have the many groaners and strugglers ever seriously asked themselves if they are giving the time and labour of their lives to the profession for *which Nature has best fitted them?* If parents took more trouble to ascertain the

natural bent of their children's inclinations, and allowed them to follow them, aided, of course, by their advice, there would, methinks, be fewer failures in the "battle of life." SNAFFLE BRIDLE.

VETERINARY CREMATORIES.

SIR,—Is it not reasonable to believe that much disease is disseminated by allowing the carcases of animals, dead from contagious diseases, to be carelessly disposed of? Why should not each city in England be provided with a veterinary cremation apparatus? ASHES.

IS THE PROFESSION BECOMING OVERSTOCKED?

SIR,—I was present at the opening meeting of the Royal Veterinary College on October 1st, and in addition to hearing the introductory lecture by Dr. Yeo, heard the subsequent remarks made by Professor Brown, as to the large number of cattle and other animals there are in this country, and the consequent abundance of occupation there was for a much greater number of veterinary surgeons than the United Kingdom contains at present.

I was, and I am sure others were, much startled at the statement; for the experience of the past ten or twenty years goes to show that, both in country and town practice, the vocation of the veterinary surgeon is not what it used to be, and that the majority of practitioners find it difficult to make a decent living, let alone save anything for old age or adversity. Farmers and others do not call for the services of veterinary surgeons so frequently as formerly, and many of them have their medicine-chests and doctor their own animals. The fees for veterinary attendance have also considerably diminished, while the competition is becoming extreme, there being three or four times the number in practice in many places than there were twenty or thirty years ago, and the cry is, "Still they come;" for the four veterinary schools are crowded with young men, who will be launched out among us with all expedition, several entering into the competition in a place where there is scarcely a living for one, and where there may be already five or six. Such is the case in my part of England, and I can scarcely doubt it is the same in others.

The consequences we all know; in only too many instances the fierce competition leads to strife and to unprofessional conduct—the practitioners ready to fly at each others' throats, and to canvass and underbid for each others' work in the most shameless and degrading manner.

Yes, sir, I think there can be no doubt about it that the profession is already greatly over-stocked; and as every examination of the Royal College rapidly exaggerates the evil, it is not difficult to prognosticate what the result will soon be. That the best days of the profession in this country are over has long been apparent, and that there is a decadence in position and degradation in the manners of many practitioners everywhere, through the abnormal competition, is, alas! still more evident. We have always had social and professional failures in our ranks—men who could perhaps write and talk glibly enough, but who, either from laziness or lack of knowledge, or both, could not earn salt for their porridge. Such men will be greatly multiplied as things are now going on, and they will doubtless expedite the downward course of veterinary surgery, as they must live, and yet they cannot earn a livelihood by their calling; even starting a weekly *Veterinary Reviler* will not keep them afloat, nor yet will circular-disseminating and newspaper-advertising do them much good after a time.

I come back to the question, Is our profession in this country not already overstocked? and is there not a change for the worse, leading to rapid deterioration in its condition? COUNTRY PRACTITIONER.

October 17th.

HOW TO BECOME A VETERINARY SURGEON.

DEAR SIR,—While waiting, a day or two ago, in a druggist's shop for some article, I casually picked up the periodical entitled *Chemist and Druggist.* For the edification of its readers, it set forth certain instructions as to "How to become a Medical Practitioner." And then came instructions in reference to "How to become a Veterinary Surgeon."

I was much amused at the remark, "There is no condition of previous training necessary, ... such as apprenticeship."

Of course the writer of the matter in the Journal was only quoting the necessary forms to go through to become a M.R.C.V.S.

Not much *previous training* is necessary to convert a chemist's assistant—and to him the writer particularly referred—into a M.R.C.V.S., able to visit and dispense for a lady's lap-dog; but most people will admit that it is not only necessary to have a life-long training with cattle to become a *properly* qualified veterinary surgeon, but they will go further, and state that there must be the right material to shape or begin upon. In other words, a horseman is not *made* but *born*, and all veterinary surgeons, except those who stick to theory and canine practice, should be *by nature horsemen.*

RECADO.

TO CORRESPONDENTS.

OLD SUBSCRIBER.—We must decline to publish your letter, though we recognise the chivalrous spirit which animates it. We would advise you to pay no heed to the statements made in the journal alluded to, as they are unworthy of notice and untruthful, and their object is obvious to the meanest understanding.

ASPIRANT.—Apply to the Principal Veterinary Surgeon to the Army. The list of candidates is very full, and vacancies are few and far between.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from W. Awde, Stockton-on-Tees; R. W. Burke, A.V.D., Athlone; S. M. Smith, A.V.D., Kirkee, Bombay; J. McKenny, Dublin; J. Mills, A.V.D., Sheffield; C. Cunningham, Slateford; F. Raymond, A.V.D., Woolwich; M. Cawthron, Hadlow; "Recado;" F. Smith, A.V.D., Aldershot; A. E. Macgillivray, Banff; S. Villar, Harrow; W. S. Johnson, Glasgow; A. Leather, Liverpool; "Aspirant;" "Old Subscriber;" S. R. Howard; Hillsborough, U.S.A.; "Ashes;" "Snaffle Bridle."

BOOKS AND PAMPHLETS: *Finlay Dun*, Veterinary Medicines; Hydrophobia, its Cause and Cure; *Dr. J. G. McKendrick*, A Text-book of Physiology; *Robertson and Penberthy*, A Text-book of the Practice of Equine Medicine; *Drs. Boschetti and Bassi*, Fleming's Trattato di Ostetricia Veterinaria; Report of the Bombay Veterinary School for 1888; Annual Announcement of the Ontario Veterinary College; Bulletin des Séances de la Société Nationale d'Agriculture de France; Eleventh Annual Report of the State Board of Health of the State of Rhode Island.

JOURNALS, ETC.: *Revue Internationale des Falsifications; Œsterreichische Zeitschrift fur Wissenschaftliche Veterinärkunde; Hufschmied; Clinica Veterinaria; Annales de Méd. Vétérinaire; Lancet; Recueil de Med. Vétérinaire; Live Stock Journal; Echo Vétérinaire; Edinburgh Medical Journal; Revue Veterinaire; Wochenschrift fiir Thierheilkunde und Viehzucht; Deutsche Zeitschrift fur Thiermedicin; Thierarzt; American Veterinary Review; Russian Veterinary Journal; British Medical Journal; American Live Stock Journal; London Medical Record; Mark Lane Express; Archiv fur Wissenschaftliche und Praktische Thierheilkunde.*

NEWSPAPERS: *North Star; Scotsman; South-eastern Gazette; Hendon and Finchley Times.*